

University News

MONDAY, DECEMBER 26, 1988

Rs. 2.50



Academic Procession of the Seventh Convocation of Sri Sathya Sai Institute of Higher Learning (Deemed University) held on November 22, 1988. Seen in the front row (from L to R) are : Shri K. Brahmananda Reddy, Governor of Maharashtra, who delivered the convocation address, Bhagawan Sri Sathya Sai Baba, Revered Chancellor and Dr. S.N. Saraf, Vice-Chancellor.

UNIVERSITY OF DELHI

No. Estab./IV/117/88

Dated : 12.12.1988

Applications in the prescribed form are invited for the following posts :

Sl. No.	Department	Post	No. of Vacancies	Scale of Pay
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3.	Centre for Professional Development in Higher Education	Senior Technical Assistant	One*	Rs. 1640-60-2600-EB-75-2900
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ESSENTIAL QUALIFICATIONS

Information Officer : A Second Class Master's degree with Diploma in Journalism and/or adequate experience of Journalism and publications public relations work.

Deputy Director : (a) A good Bachelor Degree in Arts/Science/Commerce/Engineering or Technology of a recognised University; and (b) A Post-graduate Degree or Diploma in any of the above fields or in Public Administration/Management of a recognised Institution/University or its equivalent.

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(a) A minimum of 8 years of relevant Administrative Teaching or Research experience preferably in a University or a Government Educational or Research Institution.

(b) The candidate should have sound knowledge of concepts in Management and Human Resource Development.

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Senior Technical Assistant : (i) Post-graduate with second class, and three years' experience of representing data with Cartographic techniques. (ii) Experience in providing Audio-Visual support in training programmes.

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Laboratory Attendant : Should have passed the Matriculation or an equivalent examination with Science subjects: **Desirable—**Should have worked in a Laboratory.

(i) The prescribed application forms can be had from Room No. 205, Estab. IV Section, Administrative Block of the University from 9.30 a.m. to 12.30 p.m. and 2.00 p.m. to 5.00 p.m. either personally or by sending a self-addressed envelope (size 13 cm x 28 cm) with postage stamps worth Rs. 6.00/-.

(ii) The candidates will have to produce original documents relating to their age, qualifications, experience, etc. at the time of interview.

(iii) Persons already in service in a Government/Semi-Government/Government Aided Organization should apply through proper channel.

(iv) Applications (separate for each post) accompanied by attested copies of Degree, other certificates, marksheets etc. should be addressed to the Registrar, University of Delhi, Delhi-110007. Applications for all other posts marked asterik(*) should be sent directly to the Head of the Department/Centre/Unit concerned. The last date prescribed for receipt of the application is 20.1.1989.

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Madan Mohan
REGISTRAR

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Editor :
SUTINDER SINGH

Role of the University System in NLM

L. Mishra*

1. Introduction

The programme of action to operationalise the national policy of education—1986 envisages the Mass Programme of Functional Literacy (MPFL) with a marked shift to the national programme of adult education from the present centre based approach on a limited scale to a mass programme by involving youth, teachers, students, workers, universities, colleges, schools, trade unions, panchayati raj agencies, voluntary agencies, other representative organisations of people and individuals.

2. Why a Mass Programme

It has been seen that over the years since introduction of the national adult education programme on 2nd October, 1978, there has been a progressive increase in the number of adult education projects, number of centres, enrolment of adult learners and also outlay. Despite all possible sincere efforts however, the coverage under the programme has not been found to be appreciable; besides, the gains from the implementation of the programme over a period of 10 years in terms of retention of literacy skills have been slow and marginal. The gains achieved in literacy (from 60 million persons in 1951, we have succeeded in making 247 million literate in 1981) have been more than neutralised on account of increase in the rate of population growth on the one hand and large scale drop outs and relapse into illiteracy of the neo-literates both in the formal as well as in the non-formal streams on the other. Today we are confronted with the gigantic task of making 437 million illiterates in all the age groups and 110 million adult illiterates in 15-35 age group literate. Evidently, it is not possible to achieve this objective entirely through a centre based approach on account of paucity of resources—human, material and financial. Keeping these basic limitations in view, a new thrust and priority has been given in the 7th Plan to involve students on a mass scale for the removal of illiteracy. To begin with, the Mass Programme of Functional Literacy was launched on 1st May, 1986 by involving NSS and other students in colleges and universities on the principle of "Each One Teach One". It was decided that 35% of the total allocation of NSS students made to the universities would be involved in the adult education while in respect of NCC at least 25% of the cadet strength would act as volunteers in the scheme. Starting on a modest scale of 2 lakh student volunteers in 1986, it has been decided that during 1988-1989, 3.50 lakh NSS students, 1.50 lakh other students and 0.75 lakhs cadets will be involved in MPFL.

3. Components of the Scheme

Briefly stated, the MPFL with the involvement of student volunteers implies the following :

- Motivation and mobilisation of student volunteers ;
- Identification of student volunteers;

[Paper presented at the 63rd Annual Meeting of AIU held on December 5-7, 1988]

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- Identification of illiterate persons in the age group 15-35 and their enrolment by the student volunteers;
- Production and distribution of teaching-learning materials i.e. Literacy kits by the State Resource Centre to the student volunteers through the universities/colleges;
- Training of Master Trainers such as Programme Coordinators/Programme Officers;
- Training of student volunteers by the master trainers;
- Imparting functional literacy to adult learners either in the same village/locality from which the student volunteers come;
- Monitoring of the programme from the student volunteers by the programme coordinators and DAEO;
- Coordination with other departments / agencies who will be concerned with the implementation of MPFL;
- Media support to the programme;
- Arrangements regarding giving away of certificate to the student volunteers and weightage to these certificates;
- Arrangements for post literacy activities for MPFL neo-literates;
- Evaluation of MPFL through Institutions of Social Science & Research.

4. Experience of Implementation of MPFL with Involvement of University and College Students

The MPFL with the involvement of university and college students is on the ground over a period of more than 2 years. During this period the actual implementation of the programme has been evaluated by two State Resource Centres, namely, Rajasthan Adult Education Association, Jaipur and Bharatiya Grameen Mahila Sangh, Indore. Both the evaluation study reports have indicated a number of plus and minus points in the implementation of MPFL. These are briefly stated below :

Rajasthan : Plus Points

- (i) There has been a progressive increase in the number of volunteers and they have taken part in the programme with lot of sincerity and enthusiasm.
- (ii) The programme was commenced in time and all preparations have been completed in time.
- (iii) Most of the Programme Coordinators are young, have been associated with the programme from the beginning, are committed

and would like to retain their interest in future.

- (iv) Most of the volunteers received literacy kits in time and found the kits well visualised, well illustrated, intelligible and useful.
- (v) By and large the coordinators were able to oversee the work of volunteers in the field. This improved the volunteers ability and confidence in the programme. It improved the mobility and openness of the programme and also helped in environment building.
- (vi) In addition to imparting the functional literacy, the programme helped in launching campaigns for cleanliness, protection of environment and other items of constructive work. It also helped in arousing consciousness of the women who are tied up to the Parda system and helped them in improving their self-confidence and self-image. It aroused the consciousness of the parents for sending their children to the school.

Minus Points

- (i) Two third of the volunteers are involved in the programme for the first time and majority of them were boys (only 13% were girls).
- (ii) The duration of the training for the Programme Coordinators (3 days as now) was found to be too short. It was felt that not only duration but the contents of the training were also inadequate.
- (iii) There was a clash between training schedule and timings of the examination for which all volunteers could not avail of the training.
- (iv) About 70% of the kits supplied were utilised and 30% kits were not utilised.
- (v) Motivating the adult learner is the most difficult task for the volunteer. Advanced age, hard manual labour for the whole day, lack of time and freedom, inability to perceive the need for literacy are some of the constraints which affect motivation. Similarly, irregularity of timing, poor light and hence unattractive environment also contribute to lack of motivation of the learner.
- (vi) Poverty, drought and scarcity conditions in most parts of the state, general social environment based on the Parda system, superstitions, lack of space, non-availability of kerosene in the village, change of place of adults due to migration, are some of the important factors which have contributed poor implementation of the programme.

Madhya Pradesh : Plus Points

- (i) There was a general satisfaction among the student volunteers regarding the quality of the literacy kits, its content and usefulness.
- (ii) In few cases, outstanding student volunteers did succeed in imparting literacy within 150 hours to adult learners in the 15-20 age group.
- (iii) In few cases where the learners' participation was regular, they could make satisfactory progress in reading, writing and numeracy.

Minus Points

- (i) The attendance of the Master Trainers to the training organised for them was not cent per cent. Of 552 officers proposed for the Master Trainers training, 465 officers actually participated.
- (ii) Barring a few colleges, the training of the student volunteers was overlooked by the Master Trainers and Programme Officers.
- (iii) Barring a few, no District Adult Education Officer or Project Officer was associated with the training as expected.
- (iv) A number of volunteers didn't give any information about the training received by them. This indicates lack of motivation amongst the volunteers and their indifference towards the programme.
- (v) The Programme Officers didn't do justice to the task of selecting the right type of volunteers. They failed to motivate the volunteers after selection. The learners cannot be motivated unless the student volunteers are fully motivated.
- (vi) After the commencement of the programme either the learners or the volunteers dropped out. The participation of the learners as well as of volunteers was most irregular. In a group of 411 volunteers, the drop out was recorded 49% which is more than 25% drop out in the centre based adult education activities in the state.
- (vii) On the spot investigation in one university, having both rural and urban jurisdiction, revealed that student volunteers enrolled adult learners who were already the clientele of the centre based adult education programme.
- (viii) By and large, no proper system of identification of adult learners by the volunteers was followed. The Programme Officers did not attach much importance to this component of their work.

(ix) The student volunteers could not cover even 50% of the curriculum prescribed for attainment of basic literacy.

(x) The information study for evaluation by the learner which was supplied to the functionaries was never used. The Programme Officers didn't pay any attention to this important aspect of monitoring and for evaluation of learning outcome of the programme on dependable data.

(xi) A large number of literacy kits which were supplied by the State Resource Centre are still lying in universities/colleges, student volunteers and office of the DAEOs. The number of kits supplied was far in excess of the actual need.

(xii) There was no effort to link the programme with the development activities run by different development functionaries in a particular area.

In light of the above deficiencies and shortcomings, the following corrective measures could be considered :

1. Production & Distribution of Literacy Kits

It is desirable that the requirement of literacy kits in respect of different NSS, non-NSS and NCC units in the colleges/universities for a particular year is correctly assessed in advance and intimated to the SRC for production. As lot of time is involved in despatch of literacy kits by post, it may be desirable if the kits are distributed to the Programme Coordinators at the time of their training in the State Resource Centre. The Programme Coordinators in turn could distribute the kits to the programme officers and the volunteers. On no account, the kits should be produced in excess of the actual requirement. The university/college authorities should also ensure that the number of kits supplied to them are actually utilised and are not allowed to go waste.

2. Training of Master Trainers

The SRCs are required to organise a minimum of one day training for Master Trainers such as NSS Coordinators, heads of universities and college departments of adult and continuing education, NSS Programme Officers, Training Major Deputy/Assistant Programme Advisers, etc. The SRC should make it a point to send intimation about training of the master trainers to the universities and colleges in time. To make training more attractive and effective, video films and other electronic training media should be

utilised. The training schedule should be worked out sufficiently in advance keeping in view the convenience of master trainers.

3. Training of Student Volunteers

Since a large number of student volunteers are to be covered it is imperative that a detailed training schedule is drawn up by the master trainers in advance so that they can take up the orientation of the student volunteers as soon as they have received the training at the SRC. Since the student volunteers are otherwise pre-occupied, it should be ensured that the training schedule does not clash with their examination schedule. Besides, since the most of the student volunteers have reached the desired level of educational enrichment, the training should be imparted to them in a non-formal and flexible manner which is different from a classroom lecture method. The DAEO and Project Officers of the RFLPs and SAEPs should also be associated with the training of student volunteers. To make the training attractive and effective, the video films and electronic media should be utilised, wherever possible.

4. Identification of Student Volunteers

This is an extremely difficult process and will have to be attended to with lot of imagination and care. This is more so on account of the fact that all students are not endowed with the same expertise and skill, while some students are capable of imparting functional literacy, some others may be in a position to provide some support services. Both these aspects should be attended to at the time of identification of the volunteers as also at the time of training the volunteers.

5. Identification of Adult Learners

Every student volunteer participating in MPFL is required to identify on his/her own 2-5 learners in the vicinity. The learners may be his/her parents or illiterate members of his/her family, neighbours, domestic servants, hawkers, rickshaw-pullers, construction workers, persons staying in slums, porters, coolies, etc. As literacy rate among the women, scheduled castes and scheduled tribes, labourers who migrate from rural to urban areas and other weaker sections of the society is very low, priority should be given to these groups by students/instructors while identifying the learners. Adult illiterates who have to be psychologically prepared and motivated by paying due regard to their age, occupation and time constraints, family situation, etc. The learners must be made to realise as what literacy means to them and must be convinced that such efforts and sacrifices as they make will be

worthwhile. This task will have to be performed through slides, films, nukkad natak, puppet shows and discussion with the local community leaders. While selecting adult learner, the student volunteer should ensure that the illiterate person has not been enrolled in any other existing programme of adult education. This is with a view to avoiding duplication.

6. Media Coverage and Support

In order that mass literacy campaign with the involvement of students is meaningful, intensive media coverage and support must be ensured. The features and stories on radio, press and spots in Doordarshan should regularly and continuously appear at a stretch when the MPFL is in operation. The success stories of student volunteers, Age--no barrier to learning and such other like stories (as in Angootha Chaap) could greatly help to remove fads, taboos and prejudices against literacy and learning.

7. Monitoring

This has been one of the weakest areas of MPFL. The quantitative aspect of monitoring was expected to be looked after by the DAEO and NSS cells in colleges and universities. The qualitative aspect was the responsibility of the institution as a whole. Unfortunately, however, due to non-submission of the report by the student volunteers and inadequate training about evaluation of the learning outcome, enough dependable data has not been forthcoming about actual imparting of functional literacy, number of adult learners enrolled and number of adult learners made literate. This aspect will, therefore, have to receive much more serious attention than what it has received so far. The accuracy and authenticity of the data needs to be thoroughly cross checked by the Principal/Programme Officers at the college level, Programme Coordinator of the NSS at the university level and the DAEO at the district level.

8. Post Literacy and Continuing Education

This is yet another missing link of MPFL. The literacy kits which are being produced by the SRC for the MPFL do not contain any material on post literacy and continuing education. It is imperative that bulletins are published by the SRC to provide post-literacy services to neo literates. Some of these bulletins could be on health, hygiene, sanitation, protection and conservation of environment, women's equality and empowerment, inculcation of scientific temper, etc.

9. Evaluation

The two impact evaluation studies conducted by SRC, Rajasthan and MP have brought out a number

of important issues pertaining to implementation of MPFL in these two states. It is necessary that such process be carried further and impact evaluation studies be taken up for other SRCs in respect of the remaining states. The evaluation should concern these : (a) quality of literacy kits, (b) training of master trainers and volunteers, (c) identification of volunteers, (d) actual level of achievement attained by the learner, etc. In case SRCs are not in a position to take up the study, other external evaluation agencies could be identified for this purpose.

10. Incentives to Teachers as well as Volunteers

The existing system of certification for the volunteer and lack of any recognition of the efforts made by the teacher as a master trainer by way of advancement of career have been important demotivating factors. The University Grants Commission which is in the process of designing a suitable system of institutional and individual incentives may, therefore, keep the above two important aspects in mind. Additionally, a system may be designed by which it should be possible to accord public recognition to volunteers as well as teachers for their outstanding contribution in the field of MPFL.

11. Perspective Plan for the Future

There are at present 140 universities including institutions which are deemed to be universities, 5500 colleges (mostly in the faculties of art, science and commerce) of which nearly 2500 are in rural areas of semi-urban areas, 3.5 million students and about 0.2 million teachers in the university system. 92 universities have Departments of Adult & Continuing Education who are implementing the centre based programme for quite some time. In all about 25000 adult education centres are reported to have been sanctioned in their favour by the UGC, although it is not known as to how many of them are operational. Of late, there has been a new awakening in the universities, colleges and schools which is evident from the involvement of large number of teachers and students in the mass programme of functional literacy. In the light of this awakening, it is a point for consideration as to whether the centre based programme and the individualised mass programme should be allowed to continue side by side or we should go in for substitution of the one by the other. Instances of duplication by way of enrolment of the same learner by the centre based programme as well as by MPFL volunteer have been reported. Such duplication could be avoided if we go in for adoption of an integrated area based approach in which either the centre based programme or the

MPFL is allowed to operate. Keeping in view the bright prospects of involvement of large number of students and teachers in the MPFL in the near future, it may be desirable to have a second look at the centre based programme being run by the universities and allow the same to be gradually replaced by the individualised mass programme. This is, however, a point for consideration.

The second important point for consideration is the linkage of basic literacy with Post Literacy & Continuing Education in the University system. We have so far not established any effective linkage. We may, therefore, have to go in for institutionalising the framework of Jan Shikshan Nilayams in the University system in a big way. ☐



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Development of Higher Education

Issues Related to its Planning

V.P. Garg*

This article brings into focus major issues related to planning aspect of higher education in India. The issues have been identified and analysed in the context of past development of higher education during the four decades of planning in India. Issues address themselves for future strategies of development with particular reference to access to higher education—short-term and long-term planning strategies at the national level.

I. Development of Higher Education: Quantitative Indicators

Post independence period is considered a chequered period so far the development of higher education is considered. We had 155 Universities (excluding Institutions of National Importance); 6040 colleges and 36,81,870 students on rolls on 31st March, 1987¹ as compared to 21 Universities; 496 colleges and 200 thousands students on rolls at the time of independence. These universities and colleges have around 2.34 lakhs teaching staff and are producing around 7,500 Ph.D's annually. Undoubtedly, this development profile provides an encouraging scenario of unprecedented growth and development in higher education. But a serious analysis of this growth profile reveals something more to ponder and plan.

II. Considerations for Social Equity

The development of higher education has come to such a cross road where new directions are badly needed. There are vital issues which, must envision careful planning. These issues relate to social equity; age-cohort coverage; quality aspect; the social, cultural and humanistic aspects. For elaboration, we would say that the enrolment of the level of higher education as a proportion of the relevant age-cohort (viz. 17-23 years) is still low in India as compared to other developed countries. The enrolment percentage of 17-23 age-cohort population is low as revealed by the Third All India Educational Survey of Higher Education. (UGC, 1977, p. 66). For example, this percentage was 4.62 in Maharashtra; 3.75 in Jammu and Kashmir; 3.00 in Madhya Pradesh; 2.28 in Assam; 2.6 in Andhra Pradesh². It is to be further noted that concentration of enrolment is in big cities and economically better off regions leaving a hiatus of even-development.

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III. Higher Education and Women

Again women enrolment in comparison to men leaves much to be desired. There were 44 women against 100 men enrolled for higher education. The percentage enrolment of women in the total enrolment was 30.6. There were only 771 women colleges in the total of 6040 colleges.

IV. Quantity vs Quality Dilemma

"The development of higher education in India thus faces the challenge of quantity versus quality and a strategy has to be evolved to arrive at an acceptable balance between the two demands"³ observes the University Grants Commission in its annual report for the year 1986-87.

Particularly this challenge is to be viewed from development aspect of affiliated colleges in the country. These colleges to a large extent lack the so-called modicum of facilities by way of basic infrastructure leaving apart their curriculum transactions. But at the same time, these colleges show 87.7 per cent of the total enrolment at the graduate level; 56.5 per cent at the post-graduate level; 14.9 per cent at the research level and 43.2 per cent at the diploma/certificate level.

The position of these colleges have been examined by various Commissions and Committees. In recent years, University Grants Commission has put its efforts to regulate the growth of higher education as well as the establishment of colleges. But the situation has not changed for the better. Between 1982-83 and 1986-87, the total number of colleges in the country increased by 100%, of this, six states shared as much as 811 colleges : Maharashtra (246); Bihar (188); Karnataka (112); Madhya Pradesh (101); Andhra Pradesh (86); and Orissa (78).

Further, it may be noted that increase in the number of colleges of arts, science and commerce was 672 out of 1001 colleges (67 per cent). This trend worsens the situation all the more as it does not match with the genuine needs for trained manpower in the country.. We know it well that unemployment of graduates from arts, science and commerce is acute.

V. The Social, Cultural and Humanistic Aspects

Besides issue of social equity, the social, cultural and humanistic aspects of education deserve considerations for provision of access to higher education so necessary and desirable to those who wish to gain

a degree/diploma. The concept of life-long education or recurrent-education or further education falls under this category. It is simply because the social, cultural and humanistic aspects are also considered as concomitant factors besides the economic aspects in the determination of demand for higher education. Open University System; Distance Education through correspondence education has been brought into the system of higher education as an 'avenue' on social, cultural and humanistic considerations. Today, there are 35 Universities in India which provide degree and postgraduate courses in 'general education' through correspondence education. Besides, two open Universities have started various types of courses to meet this new emerging demand for higher education.

VI. Concern for Excellence and Relevance

U.G.C. has shown equal concern for identification of priorities and regional needs, and above all, determination of relevance and excellence in higher education. Each aspect has to be examined on its merits because it is equally necessary to seek congruence rather moving in contradictory positions. While identifying priorities, it may be quite possible that we have considerations of such priorities which have a national bearing but run counter from the standpoint of regional needs. Surprisingly, same could be the case otherwise too. At least, this is applicable in two areas viz (i) Financing of Higher Education, and (ii) Curriculum Development.

Determination of relevance and excellence poses a serious challenge. This is particularly in Distance/Correspondence Education area. The objectives of such courses is to provide (a) alternative system of delivery in higher education; (b) to bring equalization of opportunity by facilities in backward regions.

Obviously, the relevance of this type of programme rests in social and humanistic considerations. Relating and reading the relevance of this programme with the paradigm of excellence is not only a misnomer particularly when its comparability is sought with a full-time regular course but irrational too. We know it well that excellence in Distance Education or Correspondence Education is constrained by its philosophy and objects. However, providing a sound footing and creditability to this programme, it will be necessary that institutions which operate such courses should ensure quality and regularity of supply of instructional material for home study; arrangement of personal contact programmes, student-responses; infrastructural support like library facilities; study-centres; use of mass media and above all cost effectiveness.

There arise some important questions which should address to delicate issues of excellence and relevance in Distance/Correspondence Education when these ques-

tions are examined against social and humanistic aspects—the ideological setting for such courses. Who are the clientele of Distance/Correspondence Education? What is their academic and socio-economic background? What type of admission policies will be followed in their case? What type of expectations this group will raise after graduating a particular course? What long-term issues are involved under such a programme? Again excellence in higher education depends upon so many facts viz: standards of elementary and higher secondary education, admission policies in general and intra and inter-institutions in particular. This all relates to selection procedures before entry to higher education. Excellence is further constrained by such considerations as drop-outs; wastage, in-efficiency in the process of system. It is clear that with the greater heterogeneity of the student population due to diverse socio-economic, geo-political backgrounds of students, modes of attendance, etc. pose a complex situation. So is the case of 'delivery system' in different institutions since infrastructural and instructional support differs from institution to institution. This definitely has a bearing upon teaching-learning process in each institution.

VII. Tasks Ahead

It is not denying the fact that expansion of higher education is bound to occur—though its pace may be slowed down by a process of diversification at the secondary stage or through new modes of delivery system. (viz: Vocationalization of education at Secondary School level; open-university system or Distance Education). But ultimately, Indian Higher Education system has to face new challenges and to seek new directions under hard-pressed situations. There is a proposal to establish an All India Council of Higher Education*. The aims and functions and its statutory position is yet to be in the formative stage. However, it has been a considered view that this Council is likely to cover up matters in higher education in its totality. Such a move is no doubt a positive one.

Without going into institutional frame, it would be necessary here to spell out areas of concern which should be attended to for planning development strategies in higher education. These strategies should be worked out on short-term and long-term planned perspective.

VIII. Thrust Areas for Planning and Seeking New Directions

(a) *Access to Higher Education*: Basic approach

*As resolved in Central Advisory Board of Education Meeting recently held in New Delhi.

relates to access to higher education. As expansion has to be a continuous affair it is necessary to formulate development strategies which address the quantitative expansion of higher education. These strategies should take into account the growth rate of enrolment by stages and faculties; admission policies and the institutional-build-up, linkage between secondary and post-secondary stage; growing impact of non-conventional institutions and enrolment position in them.

(b) *Long-term planning strategies* : Long-term planning strategies are to be evolved in the regulation of 'aggregate demand' and allocation of resources in higher education with a view to obtain balanced supply of manpower. For this purpose, a detailed but a unified and judicious matching pattern of 'demand matrices' have to be worked out which *inter-alia* accommodates pressures of 'demand and supply' functions in higher education, such accounts are possible and could be developed on the past-trends and the future requirements. Such a model would take due consideration and weightage of the wider range and type of clientele and courses—conventional and non-conventional. It would further imply that adjustments have to be made in terms of regional aspirations and national development strategies.

(c) *The structuring of courses with an outlook on their social relevance and the world of work* : It is still a debatable issue of academics as what should be the role and functions of higher education. In fast changing world, needs of societies will always be at variance hence it would invariably a poser to academic community to face and pace with this. New demands at cognitive skills—development level will set the ball rolling. Nevertheless, academics have to face these realities and live upto the social expectations and ethos. The structuring and reorganisation of University-Courses is an exercise of constant nature so as to suit to social relevance and to the requirements of 'world of work'.

(d) *Admissions and the Financing of Higher Education* : Government policies on higher education, embody a variety of objectives : Social, political, economic and which are further viewed in terms of efficiency and equity criteria. Similarly, policy of admissions and financing of higher education are formulated and implemented in relation to these objectives. Admissions—sufficient places and selection procedures in admissions; diversity of institutions to satisfy demand for skilled manpower, etc. call for choices in different methods of financing higher education. So elasticities in admissions and methods of financing would indicate the social choice and objectives in higher education. It is simply because such

elasticities control and promote admissions and regulate allocation of resources for the purpose. A long-term strategies, of planning thus calls forth an explicit resolution of government policy objectives on admissions and the financing of higher education. It is against this context that for purpose of long-term planning, it is desired that Government should formulate a well considered policy of financing higher education which justify considerations of social justice and equity; academic relevance and creditability of a course, manpower requirements and excellence, etc.

The crux of the problem is : what should be the national scheme of admissions in higher education which could cut across such sensibilities ? It is a crucial issue no doubt but warrants a careful planning.

IX. Educational Planning in relation to Economic Planning

Uptil now, discussion has been unilateral i.e. development of higher education and its planning. But any exercise on development strategies for higher education will be counter productive if we fail to integrate it with the economic planning of the national economy. The 'World of Work' and generation of employment opportunities provide the 'Call letters' and hence the 'decidration' of the world of education. In other words, the success of educational planning depends much on the success of economic planning and further where they have landed and what they have gathered in the prosperity-basket.

X. In Conclusion

Development of Higher Education in India has by all means and measures moved faster and has provided manpower ranked third in the world. But we have come on a crossing where new directions have to be sought with a careful planning. The need is to increase the employment and social relevance of university graduates.

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THE EDUCATIONAL PROCESS

"Sri Sathya Sai Institute of Higher Learning under the guidance of its Revered Chancellor imparts integral education combining pursuit of academic excellence, knowledge and wisdom, with duty and devotion, illumination through purity and meditation, healthfulness through yoga, social and national awareness through field and project works and sense of unity and world brotherhood through living in close contact with seekers of truth from all over the world" observed Shri K. Brahmananda Reddy, Governor of Maharashtra in his address to the 7th Convocation of Sri Sathya Sai Institute of Higher Learning on 22 November, 1988.

I deem it a great blessing and honour to be invited by the Revered Chancellor Bhagwan Sri Sathya Sai Baba to deliver the 7th Convocation Address on the eve of Bhagwan's 63rd birthday. The main purpose of my coming here is to pay my respects to Baba on his birthday and to seek his blessings, in the divine value of which, I have unflagging faith and reverence. My delivering the Convocation Address is merely an act of humble obedience to the command of Baba in whose presence I do not consider myself competent to

give guidelines for their wordly and spiritual good. That ceremony is observed today as a Convocation." Emboldened by this definition of Convocation I venture to say a few words with the blessings of Baba.

My student friends, you should be proud of being the alumni of this great institution. Sri Sathya Sai Institute of Higher Learning under the guidance of its Revered Chancellor imparts integral education combining pursuit of academic excellence, knowledge and wisdom,

Convocation

give words of wisdom and advice expected on such an occasion. But then the rationale of this Convocation is as unique as the Institute itself. It can be better expressed in the words of Revered Chancellor, "Only in the Institute here can be witnessed the emphasis on the divinity inherent in man. In the old days, when the pupils completed their education tenure in the ashram of the guru and were about to enter on the life of a grihastha (householder), the preceptor gave them a parting message to serve them as

with duty and devotion, illumination through purity and meditation, healthfulness through yoga, social and national awareness through field and project works and sense of unity and world brotherhood through living in close contact with seekers of truth from all over the world. In the words of the founder, the Revered Chancellor, the Institute "is intent on providing, through the educational process, the inspiration and the instruction to ensure a deep appreciation of the knowledge and wisdom accumulated

through the centuries and the genuine experience of the ideals of Sathya, Dharma, Santhi, Prema and Ahimsa." The major focus is, development of correct attitudes and values in students which will enable them to strive for perfection in physical, intellectual, emotional, psychic and spiritual parts of their personality thereby shaping them to be good leaders in society.

The very rural setting of the Institute is congenial to the development of the individual and his vision through communion with nature. In Tagore's words, "If a man lives alone on the bank of a river or in free surroundings, he develops a free vision. There is nothing more beautiful or greater than doing the ordinary things of daily life with ease and spontaneity. There is unprecedented peace and there is beauty in nature because one does not transgress the limit of the other." The late Indiraji quoting these words of Gurudev wished that "we should adopt a system of education which is free yet committed, traditional yet progressive, reflecting our culture, yet scientific. It should be imbued with a new vision and a new vigour," I can say with pride and happiness that Sri Sathya Sai Institute of Higher Learning has enshrined in its curriculum all the objectives set forth by the late Prime Minister and it has become a model for all educational institutions in the country.

Our Prime Minister Rajiv Gandhi has very correctly pointed out that "Every educational system needs regular upkeep, maintenance, upgradation and improvements. No system can be the same for ever. It has to adjust with times, with development, with new discoveries in technologies..... The question we have to ask ourselves is not just whether our

system is good enough to make us catch up with the most advanced countries in every field."

There is broad agreement all over, about the aims and objects of education. Education according to Gandhiji is not an end in itself but an instrument and that type of education can be called real education which helps us in the building of sound character. Swami Vivekanand termed man-making as its objective. Dr. Radhakrishnan said that "A nation is built in its educational institutions. Moral qualities are of greater value than intellectual accomplishments." But the fact remains that today education is considered as a device for churning out degrees which are passports to employment. Today's education does not teach one to think, but loads us with other's thoughts. As Henry Adam observed, "Nothing in education is so astonishing as the amount of ignorance it accumulates in the form of inert facts." The result is perpetuation of mediocrity in the field of education and development of unhealthy habits. Instead of sermonising, I shall illustrate this with the help of two stories. The first is by Sir David Nicolson :

"A mother was having breakfast with her son when he looked up from his porridge and said, 'I'm not going to school today, Mother,' to which she replied, with surprise, 'And why not?'

"I'll give you three good reasons for not going. First, I don't like the boys, secondly, they don't like me, and thirdly, it's a lousy school anyway."

At this the mother looked at him reprovingly and said, 'I'll give you two good reasons why you are going to school.'

Firstly, you are forty-seven

years of age, and secondly, you are the Headmaster."

Now the second anecdote. "The wife of the great physicist, Robert A. Millikan, happened to hear her maid answer the telephone. "Yes, this is where Dr. Millikan lives, but he's not the kind of doctor that does anybody any good."

While it may be difficult to de-link education from employment, it should be possible to ensure that education is not for employment alone. As Robert Penn Warren said: "Education is the business of teaching you how to live, not just how to make a living." This according to our Prime Minister Rajiv Gandhi is "the differentiation that we want to make between the system that has been prevailing in India and the system that we would like to bring in."

Education, in addition, has to promote and develop certain basic value systems. Social, economic and political justice, liberty of thought and expression, equality of status and opportunity, dignity of individual, are all values that our Constitution seeks to secure for all our citizens. If these values have to become real, they should be living and growing in our lives. It is not only the individual's value system that is important. What we need is a value system shared by all. We are held together as a nation by values, beliefs and attitudes that all of us share. It is this bond of shared ideals that provides cohesion and strength to our society, despite all the tension that life involves. It is this strength that helps us to rise above the conflicts that bedevil the society which gives our nation its unity, integrity and capacity to endure. As Indira Gandhi observed, "Education does not mean only refining manual, vocational and intellectual skills. Essentially, it is a

process of deepening the spirit." Rajivji also shared the same view when he said, "It (education) must be the key to maintaining an inherent spirituality that has been a part of India for thousands of years. It must maintain our Indianness. It must be our main defence against the deluge of materialism and pragmatism that is being thrust on us by the media and by various forces across the world."

The New Education Policy announced by Government seeks to remove the lacunae in the present system and incorporate the ideals mentioned earlier and bring good, value-based education to the weakest and poorest sections of the society.

All the Sri Sathya Sai Schools and Colleges are already preparing students to become responsible citizens of the country by inculcating a profound sense of Indianness, self discipline and selflessness, sense of service to fellow human beings, development of character and correct attitudes necessary for the full development of individual, sense of unity and integrity, faith in God and sense of spirituality and divinity inherent in man. The Code of Honour and Conduct is a cherished tradition of the Institute. Students of the Institute hailing from all parts of the country and belonging to all religions conduct themselves in the light of highest principles of integrity and participate in cultural programmes and festivals of all religions. They possess humility, reverence, compassion, forbearance, spirit of sacrifice, and self-control qualities which are the outcome of true education. The highest standards of value-based education in all Sri Sathya Sai Institutions constitute an example worthy of emulation all over the country and can serve as guide posts while implementing the New Education Policy.

The credit for this path breaking experiment undoubtedly goes to the inspiring guidance of Sri Sathya Sai Baba. The leadership provided by Dr. Saraf to the Sathya Sai Institutions also deserves special mention. I am sure that my young friends who pass out of this noble Institute will keep the flag of value-based education flying high and uphold the ideal of public good. I am also sure that these young people will reach message of true education imbibed here, to every nook and corner of the country and help in character building and increased prosperity of the nation. To recall the words of German reformer Martin Luther, "The prosperity of a country depends not on its abundance of revenues or on the strength of its

fortifications, but on its men of education, enlightenment and character." I am sure that all of you who are lucky to be the products of this Institute will light up the country with the glow of true education, enlightenment and character following the path laid by Bhagwan Sathya Sai Baba.

Friends, I shall now conclude my address by reminding you of the exhortation by William Penn :

"I expect to pass through life but once. If therefore, there be any kindness I can show, or any good thing I can do to any fellow-being, let me do it now, and do not defer or neglect it, as I shall not pass this way again." □

PURPOSES OF EDUCATION

Delivering the Benedictory Address, Bhagawan Sri Sathya Sai Baba, Revered Chancellor of Sri Sathya Sai Institute of Higher Learning, called for inculcating discipline, culture and humility.

I

OBJECTIVES OF EDUCATION

Education is an ornament for man. It is his secret wealth. It confers prosperity and fame. It is the teacher of teachers. It is one's unfailing kinsman in foreign travel. It secures the respect of rulers more than wealth.

Education is the basis for leading a purposeful life in the physical world, in the realm of the mind and in society. It equips one with the mental strength and steadiness to face the challenges of life. It enables one to understand the myriad manifestations in nature. It is only when one understands the power of his mind that he can recognise the relationship between

the world and society. Real education should enable one to realise that mankind is one family. It should help one to experience the unifying forces in society.

Unfortunately, education today is not promoting these objectives. We have no lack of intelligent men in the world today. There are any number of scientists. It is because the intelligentsia and the scientists have not been educated on right lines that the world is plunged in chaos and disorder. Education today is concerned mainly with satisfying the senses and developing intellectual skills. It ignores the development of virtuous qualities. Despite the committees and commissions set up by the Government to suggest reforms in education, no resolute efforts have been made

to effect the necessary reforms. The main reason for this failure is the lack of unity after the achievement of freedom. All the ills the nation is suffering from are due to the absence of unity and the preoccupation with ephemeral objectives. There is nothing that cannot be achieved through unity.

Education should promote discrimination and humility. The quantitative explosion in the number of educational institutions—schools, colleges and universities—has been accompanied by a corresponding decline in the quality of education. To have no respect for your betters, to be ungrateful to those who have fostered you, to revile even the teacher who taught you, can this be called "progress" in education? There is little evidence of morality in society. There is a general decline in character and conduct. Indian culture, which laid emphasis on plain living and high thinking, has been almost forgotten. Can there be anything more unfortunate for the country?

II

THE CULTURE OF INDIA

India, which achieved great heights in every cultural sphere, is today unaware of the magnitude of its greatness. Most students are not aware of even the meaning of culture. Culture refines the human spirit and makes one a complete human being. Today no attempt is made to understand the truth relating to the body, the mind and the Atma. Culture seeks to integrate the various aspects of daily life and develop a unified outlook. It should enable one to transcend the divisions of caste, creed and community and realise the divine unity that underlies the apparent diversity. Students should realise

that Indian culture is not meant only for India but is meant for all mankind to reveal to the world the path to the Divine.

Today, one finds that the virtues exhibited by illiterate villagers and uneducated folk in the tribal areas are not to be seen among the educated urban population. In fact, wherever schools, courts and administrative offices have multiplied, there we witness an increase in corruption, injustice and wickedness. In seeking to lead a free and unrestrained life, people are falling a prey to the desires of their senses. Educational institutions, which should be heavens of peace and serenity, are haunted by fears of insecurity. The true aim of education is to prepare the student for a useful role in society with the halo of the knowledge he has got and for leading an ideal life.

III

SCIENCE AND TECHNOLOGY

Science and technology have made great advances in recent years and have a prominent place in education. It is true that science has helped to improve the conditions of living. But the harm it is doing outweighs the benefits. Man has lost peace of mind and the sense of security. The growth of videos, radios, television, cinemas and air travel has been stupendous. But there is no sign of any growth in "Divine Vision". With the result that daily life is becoming more precarious. Morality and justice have declined. This must be ascribed mainly to the craze for acquiring modern scientific gadgets. Many middle class people, who have moderate incomes, wish to acquire motor vehicles, TV sets and the like which they cannot afford to buy from their regular incomes. This leads to corruption and

bribery. Even education has become expensive and far beyond the means of middle class earners. In addition, there is the tendency to show off before others, to appear to be better off than one really is. This kind of ostentation is another cause for fall in moral standards among lawyers, doctors and other professional people. There is nothing wrong with science as such. It is the way it is used that produces bad consequences.

In the reform of the educational system, it is necessary to ensure that students learn about the right use of science. True education must enable one to realise the Self (Atma Jnana). Instead of emphasising this need, modern education creates many problems and difficulties for the students. Acquiring a small fragment of knowledge, a student gets inflated notions of himself. With this sort of conceit he develops a contempt for Bharatiya culture. This is not what true education should aim at.

IV

EDUCATION AND LIFE

Education should be divorced from job hunting. Its primary purpose should be to enable the

educated person to lead an honourable and meaningful life in society. If one cannot command respect in society, of what value is his education? Education should make a man recognise his obligations to his parents and others who have made him what he is. Gratitude is a supreme virtue. If one cannot be grateful to his parents, his education is a waste.

Dear Students! In the pursuit of your studies, you must place the interests of the nation above your personal interests. If you wish to maintain the greatness of Indian culture, you should fully understand its sacredness and sublimity. India's prosperity will last only as long as its culture is preserved. India will cease to be India if its culture is lost. Consider this hoary culture as your life breath and as the blood flowing in your veins. The receiving of a degree is not the end of education. Your education will be worthwhile only when you lead exemplary lives in the service of society.

V

DUTY OF THE EDUCATED

In ancient days high value was attached to education and the

UGC Warning Against Fake Institute

The University Grants Commission (UGC) is reported to have warned the public against the fake institute "Commercial University Limited" which has been awarding degrees and certificates. The statement issued by UGC states:

"It has come to the notice of the UGC that the so-called self-styled institution 'Commercial University Limited, Post Office Building near Golcha Cinema, Darya Ganj, New Delhi-110002 is award-

ing B. Com degree and certificate by charging Rs 2,000 or Rs. 3,000 for such degrees.

All concerned are informed that the so-called 'Commercial University Limited' is neither a university established by a Central or a State Act nor deemed to be university under Section 3 of the UGC Act 1956 and as such it is not empowered to award degrees in terms of the provisions contained under Section 22 of the said Act."

students led simple lives. Their clothes and their manners were dignified. Today such simplicity and dignity are not to be seen among students or teachers generally. Discipline is at a discount. More than ever it is essential for educated persons today to conduct themselves as man of honour and integrity and raise the moral level of society. Even in pursuing the spiritual path, the process should not be from Nature to Spirit but from Spirit to Nature. By seeking to master the forces of Nature through education, people tend to become subjects of nature. Live up to the Institute's motto: "Sathyam Vada: Dharmam Chara" (Speak the Truth, Be righteous). These injunctions are not properly understood. Adhering to Truth means living up to transcendental Truth which is the eternal verity that is true for all time past, present and future. "Dharma" does not mean living as you please. The bonds of love that existed between gurus and the disciples in the past do not exist today between students and teachers. The guru considered it his duty to teach the disciple what was most beneficial for the latter and the disciple loved to render service to the guru and carry out implicitly his commands. In those days, the students were few and they received intensive instruction. Today the students are numerous and the education is diluted. Far reaching reforms are needed in the educational system today. The future progress and welfare of the nation depend upon how education is imparted. Students must be imbued with genuine patriotism. Starting with love and reverence for the parents, students should cultivate love and reverence for the Motherland. All your education must be a preparation for serving the nation.

VI

HUMAN VALUES

Broaden your vision. Cultivate the spirit of love. Being endowed with the human form, you must strive to develop human values and not stray away from the path of righteousness. Fill your minds with sublime thoughts and your hearts with divine feelings. Consider the entire society as your home. Only then you will realise genuine unity with all. Redeem

your lives by revering your parents, honouring your teachers and developing a loving faith in God. In this way you can lead dedicated lives in the spirit of the injunctions of the Upanishad. Be aware of the divinity that is inherent in every being. Thereby you will grow in your own self esteem. Fill your life with joy.

Be Happy; Be Happy
Make others Happy
All will be Happy
God will be Happy

Multi Disciplinary Approach to Education in USA

Under the auspices of the Association of Indian Universities, Dr. Donald R. Gerth, President, California State University, Sacramento, USA delivered a lecture on "Multi Disciplinary Approach in Higher Education with special reference to the State of California" on December 15, 1988 at the India International Centre, New Delhi.

On access and participation, giving data in respect of enrolment in educational institutions in California with reference to the age cohort of the population, Dr. Gerth said that both the percentage of the age cohort graduating from school and the percentage of school graduates entering college and university programmes had come down over the last 20 years. At the same time the average age of the student in the higher education institutions was going up.

Making a reference to the pluralistic composition of the Society he said that at present the percentage of white and black population entering higher education was more or less the same while the percentage of Hispanic students was low.

He then pointed out that the trend towards unstructured university programmes initiated after 1960's was giving way to increasing structuration. At present in California one had to take increasingly structured general education, majors which are also getting structured and free electives.

On the concept of the Open University in USA, Dr. Gerth said that it was to aid those who had missed out higher education earlier in their lives and was not thought of as an alternative to the formal system to take care of growing numbers.

Reacting, Prof. Moonis Raza, Vice-Chancellor, University of Delhi, who presided over the function, said that structuration was the result of the pressing demands now placed by the disciplines of physical sciences and life sciences and that of technology.

Prof. S.K. Agrawala, Secretary, Association of Indian Universities, thanked the speaker for his illuminating lecture and Prof. Moonis Raza for his thought provoking and enlivening observations. □

NIGHTINGALE EDUCATION TRUST

(Registered under the Societies Registration Act XXI of 1860)

Advertisement No. 1/88

Applications are invited from male and female candidates for appointment to the following permanent posts in the teaching departments of NIGHTINGALE ACADEMY :

Sl. No.	Name of Post	Name of the Teaching Department	No. of Vacancy
1.	Teacher (PGT)	Physics	One
2.	Teacher (PGT)	Home Science	One
3.	Teacher (PGT)	Vocal Music	One
4.	Teacher (PGT)	Fine Arts	One
5.	Assistant Teacher	Instrumental Music	One
6.	Instructor	Physical Education	One

I. The posts carry the following Pay Scales

1. Teacher (PGT) —Rs. 1000/- (Starting excluding allowances).
2. Assistant Teacher—Rs. 850/- —do—
3. Instructor —Rs. 700/- —do—

II. Age : 18 years above.

III. Qualifications

1. For the posts No. 1,2,3 & 4 : Master's degree in the concerned subject or equivalent.
2. For the post No. 5 : Bachelor's degree with Instrumental music as one of the subjects or equivalent.
3. For post No. 6 : Matriculate with Diploma or Certificate course in the concerned subject.

V. Desirable

1. Capable of teaching in English medium and candidates from non-Manipuri for the post serial No. 1 to 5. For post No. 6 is no restriction.

VI. General Information

1. Allowances are payable as per rule(s) of NIGHTINGALE EDUCATION TRUST. In addition, benefits like pension, medical facilities, leave, travel, etc. will also be available as per rule(s) of NET.
2. Accommodation at the school premises will also be provided.
3. The school is located near by Loktak Hydroelectric Project and at a distance of about 46 km. from Imphal. The classes are running right from NURSERY to TEN under affiliation of the Board of Secondary Education, Manipur and future process also will continue till the school has upto class XII.
4. Retired persons and both spouse also can apply if they are qualified for the posts.

VII. How to Apply

Please apply to the PRINCIPAL, NIGHTINGALE ACADEMY, Charoikhulen-795124, Manipur alongwith the followings :

1. Applications must be typed or neatly handwritten in English with full postal address.
2. A recent passport-size photograph duly signed and affixed on the right top corner of the application.
3. Photostat copies of all certificates, marksheets and testimonials be enclosed.
4. Date of application receipt :

Upto 31-1-1989 by hand and upto 15-2-1989 by post.

K.G. Robby
CHAIRMAN

National Workshop on Futurology at Bharathidasan University

A threeday DST sponsored National Workshop on 'FUTUROLOGY' was held at Bharathidasan University, Tiruchirapalli. In his Welcome Address Dr. S. Muthukumaran, Vice-Chancellor, Bharathidasan University, pointed out that futuristic projections being natural to mankind, a stage has now been reached for a scientific study of the future. He emphasised the need for structuring a model of the future which has all along defied a direct correlation between cause and effect.

Thiru S. Arunachalam, Hon'ble Minister of State for Industrial Development, Government of India, inaugurating the Workshop, dealt with the importance of future planning in all walks of life, especially in shaping the economy of a nation. He suggested that we should hereafter consider the future as a resource, which is rich and tangible, and approach it in a pragmatic manner. He stressed upon the vital role that the University played in advising the administrators about the trends in the future in various disciplines. He hoped that such exercises would become a part of the continuing process of modernisation as well as stabilisation of our economy.

Dr. S.C. Seth, Head, Future Studies Unit, Department of Science and Technology, Government of India, New Delhi in his keynote address traced the origin and development of the Futurology movement in the West and in India. He argued that building scenarios of the future was inevitable to the growth of a nation and that the present failures and inadequacies should be considered positively so

that a realistic scene of the future can be envisaged. He too emphasised the need to consider the future as a resource which had to be utilised so that growth and prosperity can be ensured for the coming generations. He predicted that in the future the division among people will be between the "Knows" and the "Know-nots".

In the ten technical sessions in which twenty six scholarly papers were presented, the major themes discussed were : (1) India in 2000 A.D.; (2) Aspects of Perspective Planning; (3) Future Scan in Indian Education.

Delivering the valedictory address, Dr. A. Gnanam, Vice-Chancellor, University of Madras, gave a comprehensive picture of how technology was bringing about changes in quantum leaps. He highlighted the great boom that was taking place in the field of information flow and wished that people should use all this knowledge positively and take to the science of futurology seriously. Citing several interesting examples of the predictable changes in the not too distant future in working hours, ageing, genetic recombination and value systems, he warned that there will be no time to adjust and evolve as in the past. He considered the science of futurology as a very much a part of our responsibility to be dealt within the educational system.

Some important recommendations made by the workshop are :

(1) The Workshop underlines the significance of Futurology as a discipline of study at all stages of

education. Steps may be taken to design curricula and prepare reading/reference materials at various levels of Primary, Secondary and Tertiary stages of education. In structuring the curricula content adequate care must be taken to make it interdisciplinary and also locally relevant. In other words, the study of Futurology must be able to inculcate in the students a futuristic view of the society and economy around them at the local/regional levels within the national framework.

(2) Besides introducing Futurology as a separate discipline of study, atleast one paper on "Future Possibilities" (in the concerned discipline) may be introduced in the existing courses of study. This paper must enable the students to have an exposure to the frontier and upcoming areas of knowledge and its applications in the concerned subject, thereby indicating the possible directions of future progress in the field.

(3) The Departments of Futurology to be established in select Universities and Colleges may, in addition to their regular programmes of teaching and research, organise extension education and short-term training programmes to the officials of development wings in the various Government Departments, corporate planners in industry and commerce and others concerned with future planning; these training programmes shall include futuristic approaches and methodologies with a view to give a long-term orientation to the entire development process.

(4) The non-formal education programmes including Adult Education and Mass Media must aim at creating an awareness among the masses of the future socio-economic problems which the nation

may face in the coming two or three decades in the vital areas such as energy, environment, technology, population, health, housing.

(5) The workshop recommends that every department of the Government at the District and State levels must establish a "Future Cell" which may be entrusted with the task of drafting perspective plans for the concerned areas. This may, in turn, form the nucleus of the micro-level planning machinery proposed by the Government of India.

Wave-based Energy Plant Developed

The IIT, Madras, is setting up a Rs. 1.1 crore prototype wave energy power station on a trial basis at Vizhinjam, 15 km from Trivandrum in the sea. This project, funded by the Department of Ocean Development, is to become operational by March or April 1989 and has been designed with an installed capacity of 150 kw.

Prof. L. S. Srinath, IIT Director said that the on-site project had been taken up after research and laboratory trials at the institute. It consisted of a barrier with a wave energy conversion device that should be positioned at a depth of 10 metres under water. The barrier consists of a pre-fabricated concrete caisson with a front opening. Waves entering the caisson displace air that drives an air turbine for power generation. The turbine has been designed in such a way that it rotates in a single direction when the air is pushed into and sucked in as the wave enters and recedes from the box.

Prof. Srinath noted that at Trivandrum where the project was coming up near a breakwater of a fishing harbour, the estimated cost of power generation was 75 paise per kwh. Where it was not part of a harbour breakwater, the cost would go up to Rs. 2.20 per kwh.

Prof. V.S. Raju, coordinator, wave energy project, said the experiments and trials had gone on for five years while the Trivandrum project had been set in motion nine months ago. The construction work would be completed by January next. Besides generating power, this kind of a project, he said, had other objectives—creation of breakwaters would pave the way for marine culture and act as an anti-erosion agent. Prof. Raju said Norway was the only other country that had attempted wave energy but its location was on sea against a mountain, which was itself the barrier. Trivandrum would be the first in-sea breakwater wave energy system. The potential for wave energy on the Indian coast, he said, was 40,000 MW, and the Trivandrum-Kanyakumari coast would be the ideal location of any project.

The IIT has requested the Planning Commission to sanction Rs. 40 crores for going in for more such stations in the country during the Eighth Plan. Once power is generated by the Trivandrum station it will be synchronised with the Kerala State Electricity Board.

High Energy Physics Symposium at Madras

Prof. Z.C.G. Sudarshan, Director, Institute of Mathematical Sciences (Matscience), Madras, called for integrity on the part of the scientific community in the pursuit of truth and excellence and to ensure that the scientific institutions did not suffer. He was inaugurating the ninth High Energy Physics Symposium, organised by the Department of Atomic Energy, co-sponsored by the Institute, University Grants Commission and the Indian Institute of Technology at Madras recently. He said scientists of different disciplines must contribute to the common task ahead of them. The second and third fidd-

les in an orchestra were important and integral to achieve harmony but they should not try to play the role of the conductor, he added.

Prof. Sudarshan traced the history of research and experiments in the field of high-energy physics, particularly the recent super-symmetry of grand-unified theories.

Prof. L. S. Srinath, Director of IIT, Madras, suggested greater interaction among various scientific organisations in Madras rather than on an individual-to-individual basis.

Over 120 papers were presented at the symposium on various aspects of theoretical and experimental advances in high-energy physics.

Philosophy of History

Prof. Sheik Ali, Vice-Chancellor, University of Goa, while delivering a lecture at the Faculty of Social Sciences, Banaras Hindu University on 'Philosophy of History' underlined the role of ideas in history and explained the importance of contingency, necessity and logic and the interplay of these factors in the presentation of historical material. He said, facts of history were as important as the approach of the author and the way he could recreate the past. Prof. Ali, in particular referred to three historians. He explained, how 'Ibn Khaldun' began by writing the history of a region and ended by making the first effort on writing universal history.

Talking of Spengler and his monumental work 'Decline of the West' he said, "this famous German historian represented the feeling of despondency generated after the First World War". Elaborating the writings of well known historian, Arnold J. Toynbee whose broad vision of civilisation and culture is well known, he said Toyn-

bee set a new pattern not only for the later historians but also for all those who were engaged in studying social change in its widest ramifications. Prof. Ali highly appreciated the teaching of historiography as a compulsory paper at the postgraduate level. He emphasised that without the knowledge of philosophy of History the study of History would be incomplete.

The Vice-Chancellor, B.H.U., Prof. R.P. Rastogi in his presidential remarks gave his own thoughts on the problems of 'historiography'. He said that he was pleased to note that history writing was taking new form and various other branches of social sciences could gain a great insight from such efforts.

Study of Semi-Conductor Materials

Dr V. S. Arunachalam, Scientific Adviser to the Defence Minister and Secretary, Defence Research and Development Organization said that the increasing sophistication in defence equipment in recent times is directly related to crucial breakthroughs made in the study of semi-conductor materials.

He was addressing the international conference on semi-conductor materials organised by Delhi University in collaboration with the Semi-Conductor Society. He said that the Central Defence Research Department was giving high priority to development of semi-conductor materials, like silicon and mercury cadmium telluride, which are used to manufacture mine detectors and radars.

Professor Moonis Raza, Vice-Chancellor of Delhi University, said that further advancement in science and technology could bring about an industrial revolution in India. He said that academics should not concentrate only on

abstract problems, their work should also help to solve general problems of the public.

It is only recently that the Indian Government has started giving emphasis on the study of semi-conductor materials, said Professor P.C. Mathur, Chairman of the Organizing Committee of the Congress. The popularity of the consumer electronic products in which semi-conductor materials are extensively used had made Indian scientists aware of their relevance, he added.

As part of the conference a four-day intensive tutorial course was also organised. One hundred and seventy-five Indian scientists, along with 40 others from foreign countries took part in the tutorials where they got an opportunity to hear experts in this field.

UGC Grant for Garhwal Varsity

The University Grants Commission (UGC) has sanctioned a grant of Rs. 200.70 lakhs to Garhwal University for implementing various programmes during the remaining period of the Seventh Plan. Of this, Rs. 100.03 lakhs has already been released.

Coaching Centre at Punjabi Varsity

The University Grants Commission (UGC) has approved a pro-

posal of the Punjabi University to set up a coaching centre for competitive examinations for educationally backward minorities like Muslims, neo-Buddhists, etc. at Government College, Malerkotla and has extended a financial assistance of Rs. 6.50 lakh for five years for running the Centre. The Centre will provide coaching for various competitive examinations like IAS and other allied services, PCS examination, State Services examination, Bank Probationary Officers, Examination, Pre-entrance examinations for different professional courses, etc.

The UGC has also recommended the establishment of an audio-visual research centre at the University. This would enable the university to conduct the academic and research activities on modern lines in a more effective way.

Master's Course in Computer Applications

The Punjabi University has decided to run Masters' course in computer applications at the Guru Kashi Institute of Advance Studies at Dam Dama Sahib in Bathinda District. One post of Professor and two posts each of Readers have been sanctioned to run the course.

News from Agril. Varsities

Training Course for VEWs in Crop Production & Extension Methodology

The Krishi Vigyan Kendra/ Extension Training Centre, Malangpora of Sher-e-Kashmir University of Agricultural Sciences & Technology organised a 2-month training course in crop production and

extension methodology for the benefit of Village Extension Workers (VEWs). The overall objective of the course was to impart need-based skill training to VEWs in raising field crops on scientific

lines as well as in extension techniques involved in transfer of agriculture related technologies to the farmers.

In this refresher course more than 30 VEWs from different districts of Kashmir Division including Ladakh took part to keep themselves abreast with latest/improved extension techniques and agric. technologies.

During these two months of training, VEWs were educated and trained in the use of improved seeds, judicious use of fertilisers, integrated control of insect-pests in crops and raising of crops under adverse weather conditions. They were given skill training in agrovocations like growing of mushroom, rearing of silkworm and cultivation of fodder round the year for animals. Besides, VEWs were also acquainted with latest extension tools and techniques for dissemination of information/transfer of technology and ultimately for adoption of innovations in the entire villages in shortest possible time, so that farmers may reap the fruits of researches. Further, VEWs were also taken around the University research stations and departmental farms, so as to show them the research work being conducted on different aspects of agriculture, horticulture, forestry, etc.

Meteorological Weather Centre at PAU

A centre for medium range weather forecasting and agrometeorological advisory service is being set up in the Department of Agricultural Meteorology of Punjab Agricultural University (PAU) to strengthen the weather service for the farmers of the State. The Union Ministry of Science and Technology is reported to have provided Rs. 14 lakhs for the purpose. The centre will be linked with the super computer being

installed in the Meteorological Department, Delhi.

According to Dr. H.S. Mavi, Head of the PAU Department of Agricultural Meteorology, with the strengthening of the Meteorological Weather Centre the University will provide a seven day advisory weather service to farmers through AIR and Doordarshan. A cloud picture along with the weather forecast will be a regular part of the news bulletin at 7.30 p.m.

The Punjab State Agriculture Marketing Board and Markfed have also provided Rs. 9.3 lakh for strengthening the weather forecasting system. Under this project the latest model of a facsimile

weather recorder and equipment for receiving satellite cloud pictures will be imported. The satellite ground receiving station of the PAU Meteorological Centre is already receiving cloud pictures.

Hybrid Seeds Project for KAU

The Indian Council of Agricultural Research (ICAR) is reported to have sanctioned a research project for development of hybrid seeds in vegetables and their management to the Kerala Agricultural University. The project envisages development and evaluating hybrids in bitter gourd, snake gourd and pumpkin.

News from UGC

INSAT 1-B Programme of UGC

Between 2nd January to 9th Jan., 1989 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

2.1.89

"The Open Door-Life of S.N. Bose"

"One Out of Ten Thousand"

3.1.89

"Preventing Pesticide Poisoning"

"What is Communication? Why Study it?"

"Oris : A Biomedical Industry"

4.1.89

"Industrial Technology"

"Cartography Interpreting Maps-II"

"Plants in our Neighbourhood -I"

5.1.89

"Logical Design"

"A Prophet of the Space—An Interview with Arthur C. Clarke—I"

"How to Read a Contemporary Poem—II"

6.1.89

"Philosophy of Science—Of More and Less—III
Euclidean Geometry & Axiomatic"

"Ethnographic Film—II
Panorama"

7.1.89

"Interior Decoration—I"

"Modern Art"

"Mobile by Alexander Calder"

8.1.89

No Telecast

9.1.89

"Journey to the End of the Earth"

"Nuclear Energy"

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday

CURRENT DOCUMENTATION

A List of Select Articles culled from Periodicals received in the AIU Library during November, 1988

EDUCATIONAL PHILOSOPHY

Young, Frances. Educating for excellence. *British J. Ednl Studies* 36(2), 1988, 100-110.

EDUCATIONAL PSYCHOLOGY

Best, David. Education of the emotions: The rationality of feeling. *Oxford Rev Edn* 14(2), 1988, 239-49.

Bockaerts, Monique. Motivated learning: Bias in appraisals. *Intl. J. Ednl. Res.* 12(3), 1988, 267-80.

Jonathan, Ruth. The notion of giftedness. *British J. Ednl. Studies* 36(2), 1988, 111-25.

Nenniger, Peter. Cognitive and motivational orientations of U.S. and European students: Differences and structural correspondences. *Intl. J. Ednl. Res.* 12(3), 1988, 257-66.

Pratap, S. and Gupta, N.K. Unemployment and psychological well being in professional graduates. *J. Hr. Edn.* 10(3), 1985, 271-72.

EDUCATIONAL SOCIOLOGY

Adelman, Clifford. To compete or not to compete. *Ednl. Record* 69(2), 1988, 32-37.

Grant, Nigel. The education of minority and peripheral cultures: Introduction. *Comp. Edn.* 24(2), 1988, 155-66.

Kirpal, Vinay. Teaching language to scheduled caste students: A humanistic approach. *J. Hr. Edn. (Delhi)* 13(1-3), 1987-88, 63-68.

Mathias, T.A. Women's education and development: The key to a brighter future in Asia. *New Frontiers Edn.* 18(3), 1988, 42-57.

Pandey, Rajendra. Student activism in British India. *J. Hr. Edn.* 11 (1 & 2, (Delhi) 1985-86, 145-55.

EDUCATIONAL POLICY AND PLANNING

Nayana Tara, S. Education: Vital component of development. *Yojana* 32(20), 1988, 9-10, 18.

Suman Chandra, K. Educational policy: Retrospect and prospect. *The Edn. Q.* XL(1), 1988, 27-30.

EDUCATIONAL ADMINISTRATION

Lieven, Michael. Authority in an educational institution. *Studies Edn. Adults* 20(2), 1988, 124-34.

Sancheti, Neelu. Institutional autonomy and inter and international networks in Indian management education. *J. Hr. Edn. (Delhi)*, 13(1-3), 1987-88, 87-99.

White, George M. and Wong, Simon K.S. Interactive timetabling in universities. *Comput Edn.* 12(4), 1988, 521-29.

CURRICULUM

Goldstein, Laurence. The shaping of the curriculum. *Oxford Rev. Edn.* 14(2), 1988, 215-25.

Takwale, Ram G. Restructuring first degree courses and their link with community. *J. Hr. Edn. Delhi* 10(3), 1985, 153-68.

TEACHERS & TEACHING

Indira, R. Academic and professional career of engineering college teachers. *J. Hr. Edn. (Delhi)* 13(1-3), 1987-88, 115-20.

Kanwarjit Singh and Agyajit Singh. Impact of teaching practice on student teachers' attitudes. *Indian Ednl. Rev.* 23(1), 1988, 99-103.

Vanikar, R.V. and others. Teaching English and learning English : A study of sources of English available to first-year students at M.S. University, Baroda. *J. Hr. Edn. (Delhi)*, 10(3), 1985, 243-7.

Yadav, M.S. and others. Research and teaching. *J. Hr. Edn. (Delhi)* 10(3), 1985, 177-84.

EDUCATIONAL RESEARCH

EDUCATIONAL RESEARCH in Australia 1988. *Intl. J. Ednl. Res.* 12(4), 1988, 347-451.

EDUCATIONAL TECHNOLOGY

COMPUTER SIMULATIONS as research tools. *Intl. J. Ednl. Res.* 12(1), 1988, 1-102.

Megarry, Jacquetta. Hypertext and compact discs : The challenge of multi-media learning. *BJET* 19(3), 1988, 172-83.

EDUCATIONAL EVALUATION

Miller, M. David and Linn, Robert L. Invariance of item characteristic functions with variations in instructional coverage. *JEM* 25(3), 1988, 205-20.

Parthasarathy, R. and Patel, R.J. Semester system in Gujarat Agricultural University. *J. Hr. Edn. (Delhi)* 13(1-3) 1987-88, 138-46.

QUALITY OF EDUCATION indicators. *Studies Ednl. Eval* 14(1), 1988, 3-113.

ECONOMICS OF EDUCATION

Kirpal, Viney and others. Wastage among scheduled caste and scheduled tribe students. *J. Hr. Edn. (Delhi)* 11 (1 & 2), 1985-86, 11-116.

PHYSICAL EDUCATION & SPORTS

Olafson, Gordon A and Hastings, Dennis W. Personal style and administrative behaviour in Amateur sport organizations. *J. Sport Management* 2(1), 1988, 26-39.

VOCATIONAL EDUCATION

Kaptan, S.S. A study of management education. *J. Hr. Edn. (Delhi)* 13(1-3). 1987-88, 108-11.

ADULT EDUCATION--NON FORMAL EDUCATION

Adiseshiah, Malcolm S. Poverty and education. *IASSI Qlly Bulletin* 7(1), 1988, 1-8.

DISTANCE EDUCATION

Bates, A.W. Technology for distance education : A 10 year prospective. *Open Learning* 3(3), 1988, 3-12.

Misrs, B.L. Distance education and management learning: The case of IGNOU. *J. Hr. Edn. (Delhi)* 13(1-3), 1987-88, 146-9.

Natarajan, V. A critical evaluative study on distance learning programmes in Indian Universities. *Studies Ednl. Eval.* 14(2), 1988, 147-50.

Ram Reddy, G. The Indira Gandhi National Open University : Its role in higher education. *J. Hr. Edn. (Delhi)*, 11 (1 & 2), 1985-86, 157-67.

Simpson, Ormond. Counselling by correspondence in distance education. *Open Learning* 3(3), 1988, 43-5.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Finn, Chester E. Education reform in the United States : Trends and issues. *Intl. J. Educ. Res.* 12(2), 1988, 115-21.

Moonis Raza and Aggarwal, Yash. Higher education : Regional dimension. *J. Hr. Edn. (Delhi)*, 11(1 & 2), 1985-86, 1-38.

RESTRUCTURING AN education system : The U.K.'s Education Reform Act. *ABCD* (85), 1988, 11-15.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Ramakrishna Reddy, G. *Bio-anthropological study among Sunni Muslims of Chittoor District, Andhra Pradesh*. Venkateswara. Dr. T. Ramachandraiah, Department of Physical Anthropology, Sri Venkateswara University College, Tirupati.

Biochemistry

1. Bhaumik, Tapasi. *Metabolic effect of hormonal therapy in rats with special reference to normal contraceptives*. Calcutta.

2. Panda, Chinmay Kumar. *Studies on DNase I-hypersensitive sites of chromatin and its interactions with anthracycline antitumour antibiotics*. Calcutta.

Microbiology

1. Lipton, Aaron Premnath. *Studies on microbial diseases of some commercially important fresh water fishes with special*

reference to *Aeromonas* sp. and *Pseudomonas* sp. Madurai.

2. Saxena, Manoj. *Biochemical, immunological and pathological studies on intra and extra-cellular phospholipase A of Salmonella new-port*. Panjab.

Botany

1. Anil Kumar. *Studies on soil mycoflora amended with some local weeds*. Magadh.

2. Anjly. *Genetic and biochemical analysis of tryptophan requiring mutants of Rhizobium trifolii*. HAU.

3. Barua, Basabi. *Seed quality in Carthamus tinctorius L. cv. JLA 900 in relation to the position of inflorescence and the effects of retardants on growth and yield of the plant*. Burdwan. Dr. Kajal Gupta, Reader, Department of Botany, University of Burdwan, Burdwan.

4. Charyulu, N. V. Narasimha. *Physiological changes during growth and development of Spathodea campanulata Beauverflower*. Osmania.

5. Dhruv Prasad. *Fungal colonization on decaying herbaceous stems of some astoraceous plants*. Magadh.

6. Dhyani, A.P. *Mycoflora associated with the seeds of Brassica napus Linn and Capsicum spp. in storage and field conditions of Kumaun Hills.* Kumaun. Dr. R.D. Khulbe.

7. Gangwar, Abdhesh Kumar. *Cropping and yield patterns under slash and burn agriculture (Jhum) in North East India and related ethnobiological studies.* NEHU. Prof. P.S. Ramakrishnan, Prof., Department of Ecology, Jawaharlal Nehru University, New Delhi.

8. Palit, Ruma. *Tissue culture and biochemical studies of blast disease resistance in rice.* Osmania.

9. Pandey, Hansa. *Taxonomic study of aspergilli belonging to Aspergillus floures group and their toxin producing capacity.* Kumaun. Dr. B.S. Mehrotra.

10. Pandey, Neeta. *Studies on the relationship of some storage insects and storage fungi of grains.* Kumaun. Dr. B.S. Mehrotra.

11. Patnaik Suprava. *Studies of land use and village ecosystem function in the Khasi Hills of Meghalaya.* NEHU. Prof. P.S. Ramakrishnan, Department of Ecology, Jawaharlal Nehru University, New Delhi.

12. Sati, M.C. *Studies on seed-borne fungi of Lycopersicon esculentum Hill and Phaseolus vulgaris L. grown in Kumaun Hills.* Kumaun. Dr. R.D. Khulbe.

13. Shukla, Rani. *Ecological studies in fungi from plant litter submerged in water with special reference to its decomposition.* Durgawati. Dr. D.P. Tiwari, Prof., Department of Botany, Government Science College, Jabalpur.

14. Singh, Daban Prasad. *Biostatistical study of some common weeds occurring in north Bihar.* Magadh.

15. Sree Ramachandra Murthy, M. *Studies on impact of soil and air pollution on vegetation of certain areas of Hyderabad.* Osmania.

16. Sudarsanam, G. *Ethnobotanical survey and phyto-pharmacological screening of selected medicinal plants of Chittoor District.* A.P. Venkateswara. Prof. P. Gopala Rao, Department of Botany, Sri Venkateswara University College, Tirupati.

17. Suvamalatha, G. *Regulation of senescence of cowpea (Vigna unguiculata Linn) leaf discs by Calcium (Ca^{++}) and chlorpromazine (CPZ), a Ca^{++} , Calmodulin (CaM) antagonist.* Venkateswara. Prof. P.M. Swamy, Department of Botany, Sri Venkateswara University College, Tirupati.

18. Thakur, Arun Kumar. *Cytological and mutagenic studies in Papilionaceae.* Magadh.

Zoology

1. Baig, M. Azhar. *Effect of heptachlor, an organochlorine insecticide on functionally different muscles of freshwater edible fish, Channa punctatus.* Venkateswara. Dr. K. Jayanitha Rao, Department of Zoology, Sri Venkateswara University College, Tirupati.

2. Banerjee, Udayan. *Studies on development of certain endocrine glands in fresh water turtle.* Bhopal. Dr. Arun Raghuvanshi, Reader, Department of Bioscience, Bhopal University, Bhopal.

3. Basha, Shaik Mahaboob. *Some parameters involved on the effects of organophosphates and organochlorides of fresh water mussel, Lamellidens marginalis (Lamarck) as a biomodel detector.* Venkateswara. Prof. K.S. Swami, Department of Zoology, Sri Venkateswara University College, Tirupati.

4. Basu Roy, Tapasi. *3H-thymidine radiography and the cycle of the seminiferous epithelium of the Indian gerbil, goat and hooded mouse.* Burdwan. Prof. Sudhangshu Kr. Ghoshal, Department of Zoology, University of Burdwan, Burdwan.

5. Bhattacharyya, Anjana. *Effects of snake venom on liver and liver microsomes of albinorats.* Burdwan. Prof. Giridhari Majumdar, Department of Zoology, University of Burdwan, Burdwan and Prof. Chittaranjan Maity, Department of Biochemistry, Burdwan Medical College, Burdwan.

6. Danaraj, S. *Accumulation, metabolism and effect of some insecticides on non-target organisms.* Kumaun. Dr. B.R. Kaushal.

7. Dhindsa, Harjinder Singh. *Studies on false smut of rice in Punjab.* PAU.

8. Dwivedi, Deepa. *Statistical analysis of Spinometra gigantea (Trematoda: Plagioreluidae) with special reference to correlation and regression.* Bhopal. Dr. Santosh Kumar, Prof. and Head, Department of Bioscience, Bhopal University, Bhopal.

9. Ghosh, Arabinda. *Histophysiological studies on the internal reproductive organs of the stored grain pest, Sitophilus oryzae (L.).* Calcutta.

10. Gopal Krishna Pillai, K. *Taxonomy and bionomics of some predaceous spiders from major agricultural crops of Saurashtra Region, Gujarat.* Bhavnagar. Dr. B.H. Patel, Department of Zoology, Sir P.P. Institute of Science, Bhavnagar University, Bhavnagar.

11. Hardeep Singh. *Selection and calibration of an effective sprayer for control of bollworms on cotton.* PAU.

12. Hazra, Ashis Kumar. *Studies on the distribution of soil microarthropods in some poor and polluted soil environments of the West Bengal with special reference to Collembola.* Burdwan.

13. Kameswaramma, Anepu Lakshmi. *Studies on the mole crab, Emerita asiatica (Milne-Edwards) (Crustacea: Anomura).* Andhra.

14. Kisan Kumari. *Studies on condition factor and histology of the alimentary canal, gonads, thyroid and skin of Bagarius bagarius.* Magadh.

15. Mallick, Pranab Kr. *The reproductive behaviour and the chronology of meiosis and spermiogenesis in Rana limncharis, Rana verrucosa and Rana cyanophlyctis.* Burdwan. Prof. Sudhangshu Kr. Ghoshal, Department of Zoology, University of Burdwan, Burdwan.

16. Manjula Devi, P. *Ecotoxicological studies on freshwater fishes with special reference to pollution.* Osmania.

17. Mankodi, P. C. *Histochemical and histometrical characteristics of myotomal and fin muscle fibre, their possible relation to growth of some fresh water and marine fishes.* Saurashtra. Dr. A.P. Mansuri.

18. Naidu, V. Sreenivasulu. *An elucidation of 2, 4-dichlorophenoxy acetic acid (herbicide) toxicity on the physiology of the fish, Tilapia mossambica (Peters).* Venkateswara. Dr. P. Murali Mohan, Department of Zoology, Sri Venkateswara University College, Tirupati.

19. Pal, Paresch Chandra. *Seasonal variations in the lipid, protein and carbohydrate content of liver, muscle and gonads in an Indian freshwater catfish, Clarias batrachus (Linnaeus) with reference to spermatogenesis and oogenesis.* Burdwan. Dr. Gaur Mohan Sinha, Reader, Department of Zoology, University of Burdwan, Burdwan.

20. Piska, Ravi Shankar. *Certain aspects of reproductive biology of carp minnow, Salmostoma elupeoides (Block) of hyd. waters.* Osmania.

21. Rama Murthy, K. *Impact of heptachlor on haematological, histological and selected biochemical parameters in freshwater edible fish, Channa punctatus (Block).* Venkateswara. Dr. P. Murali Mohan, Department of Zoology, Sri Venkateswara University College, Tirupati.

22. Ramesh Babu, S.B. *Effect of organophosphate pesticide methyl parathion on growth and aspects of metabolism of juveniles of fresh water teleost, Cyprinus carpio.* Venkateswara. Dr. P. Murali Mohan, Department of Zoology, Sri Venkateswara University College, Tirupati.

23. Ramesh Reddy, G. *Water deprivation effect on freshwater snail, Pila globosa : Role of ganglia in metabolism with special reference to proteins and lipids.* Venkateswara. Dr. G. Sreeramulu Chetty, Department of Zoology, Sri Venkateswara University College, Tirupati.

24. Rutela, M. S. *Studies on the blood of white leghorn variety of fowl (Gallus domesticus) following its introduction in the Kumaun Hills.* Kumaun. Dr. R.D. Joshi.

25. Sain, Mangal. *Studies on varietal resistance and bio-nomics of rice gall midge, Orseolia oryzae (wood-mason).* Osmania.

26. Samaata, Amal Kr. *Studies on morphology and histo-chemistry of female reproductive organs and autoradiography of testis of certain Indian insects.* Burdwan. Dr. Mohitosh Banerjee, Reader, Department of Zoology, University of Burdwan, Burdwan.

27. Sant Prakash. *Genetic studies on Rana limnocharis.* NEHU. Dr. K Chatterjee, Department of Zoology, North Eastern Hill University, Shillong.

28. Sebastian, P. A. *Studies on the biology of some predaceous spiders on insect pests of some major crops of North Gujarat.* Bhavnagar. Dr. B.H. Patel, Department of Zoology, Sir P. P. Institute of Science, Bhavnagar University, Bhavnagar.

29. Singh, Jarnail. *Modelling and analysis of rice milling system of Punjab State.* PAU.

30. Siva Prasad, S. *Neurobiological studies on the silkworm, Bombyx mori.* Venkateswara. Dr. P. Muralimohan, Department of Zoology, Sri Venkateswara University College, Tirupati.

31. Sreenivasulu Reddy, E. *An attempt towards understanding certain metabolic control mechanism in the differentiation and development of the scorpion embryos.* Venkateswara. Dr. P. Venkateswara Rao, Department of Zoology, Sri Venkateswara University College, Tirupati.

32. Thanikonda, Baby Ratna Kumari. *Studies on morphology, growth, life cycles and population biology of some digenetic trematodes of the skipper frog, Rana cyanophlyctis Schneider.* Andhra.

33. Venkataiah, B. *The effects of tree plantation on the ecosystem structure and function of the soil arthropod populations of a semi-arid tropical savanna.* Kakatiya. Dr. M. Vikram Redy, Reader, Department of Zoology, Kakatiya University, Warangal.

34. Vijayalakshmi, P. *Studies on some metabolic and physiological responses in Metapenaeus monoceros (Fabricius) under sublethal phosphamidon exposure with emphasis on nitrogen metabolism.* Venkateswara. Dr. K.V. Ramana Rao, Department of Zoology, Sri Venkateswara University, P.G. Centre, Kavali.

Medical Sciences

1. Chakraborti, Lakshminarayan. *Effects of body tilting on various physiological responses.* Calcutta.

2. Chaturvedi, Vishnu Prakash. *Blastomyces dermatidis : A study of its natural habitats and role in respiratory disease.* Delhi.

3. Gaitonde, R.V. *Pharmacognostic study of some medicinal plants from Goa.* Goa. Dr. A.G. Untawale, Asstts. Director, National Institute of Oceanography, Dona-Paula, Goa.

4. Jayabharathi, S. *Studies on the pineal gland in pregnancy.* Madurai.

5. Mishra, Ghanashyam. *Netrottamh.* Jagannath, Pt. Kaviraj Narasingha Mohapatra.

6. Nageswara Rao, Gaddam. *Biopharmaceutical studies on a new technique of microencapsulation and its application in the design of controlled release dosage forms of selected drugs.* Andhra.

7. Vasanthakumari, G. *Sex steroids and the pineal-hypothalamopituitary gonadal axis.* Madurai.

Agriculture

1. Bahirat, Dilip Waman. *Feasibility of urea factory effluent for irrigation purpose.* MP Agrl. Dr. G.K. Zende, Ex-Head, Department of Agricultural Chemistry and Soil Science, Mahatma Phule Agricultural University, Rahuri.

2. Chattopadhyay, Nabansu. *Studies on characterization, availability and transformation of phosphorus and micronutrients in city wastes compost and utilization by rice.* Calcutta.

3. Chaudhari, Ashok Namdeo. *Inheritance of qualitative and quantitative characters in tomato (Lycopersicon esculentum Mill).* MP Phule. Dr. G.P. Argikar, Vrindavan, Vishrambag, Sangli.

4. Choudhary, Ram Snehi. *Residues and residual effectiveness of some organophosphorus insecticides against the pest complex of okra (Abelmoschus esculentus (Linn) Moench).* Rajendra Agrl.

5. Dattagupta, Manas Kumar. *Characterization, utilization and nutrients enrichment of city wastes compost.* Calcutta.

6. Sarma, Bharati Devi. *Physiological studies on the effect of plant growth regulators on the germination and vegetative growth of radish (Raphanus sativus).* Gauhati. Dr. C. M. Sharma, Reader, Department of Applied Botany and Biotechnology, Gauhati University, Gauhati.

7. Vishnu Kant. *Light storage of seed potatoes : Hormonal changes and Performance of cultivars differing in tuber dormancy.* H.P.

Animal Husbandry

1. Khala, I. Pihoto. *Studies on comparative efficacies of some anticoccidial drugs against Eimeria tenella infection in chicks.* Birsa Agrl.

2. Meitei, H. Medhabati. *Studies on the incidence and control of coccidial (Eimeria spp) infections in rabbits.* Birsa Agrl.

3. Rasulbhai, Momin Rahemtulla. *Attempted immunization of crossbred calves against ixodid tick, Hyalomma anatolicum anatolicum Koch (1844).* HAU.

4. Sakharam, Bhagat Shamrao. *Studies on milking behaviour and management in murrah buffaloes.* HAU.

Birla Institute of Technology

MESRA : RANCHI

Admission to 3-Semester (1½-Yr.) Postgraduate Programme

Session Commencing : January—1989

Applications are invited for admission to the following 3-Semester (1½-Yr.) Postgraduate courses leading to M.E. Degree :

Courses

Specialisations

M.E. Degree Programme

(i) Electrical Engineering	:	1. Control Systems	2. Power Systems
(ii) Electronics & Commn. Engg.	:	1. Microwave Engg.	2. Instrumentation & Control
(iii) Mechanical Engineering	:	1. Heat Power	—
(iv) Space Engg. & Rocketry	:	1. Aerodynamics	2. Rocket Propulsion

Eligibility Requirements

1. (i) For M.E. Electrical, Electronics & Commn. & Mechanical Engineering.

A Bachelor's Degree in the appropriate branch of Engineering with a minimum of 60% marks in aggregate or Sec. A & B of the A.M.I.E. (India).

- (ii) For M.E. Space Engg. & Rocketry

A Bachelor's Degree in Mechanical or Aeronautical or Chemical Engineering with a minimum of 60% marks in aggregate or Sec. A & B of A.M.I.E. (India) or A.M. Aero. S.I. or A.M.I. Ch. E. or equivalent.

2. Must have qualified at the Graduate Aptitude Test in Engineering (GATE).

Note : SC/ST candidates having a minimum of 55% aggregate marks are eligible.

15% seats are reserved for Scheduled Caste candidates and 7½% for Scheduled Tribes candidates. However, to be considered for admission they should have qualified at the GATE.

Students admitted to the above courses will receive Ministry of Human Resource Development Training Fellowship @ Rs. 1,000/- per month.

Application forms can be obtained from the Institute Office by sending a Postal Order for Rs. 25/- payable to the Registrar, Birla Institute of Technology, Mesra, at Mesra Post Office and a self-addressed envelope of size 280 mm x 125 mm having 1.80 stamp. Forms will be issued upto December 31, 1988 by post and upto January 6, 1989 at the Institute Counter. Completed Application Forms should reach the Institute latest by January 7, 1989.

Interviews of short-listed candidates will be held on January 21, 1989 and regular classes will commence with effect from January 23, 1989.

J.B. Saksena
REGISTRAR & OSD

Ministry of Human Resource Development

(Department of Education)

Nehru Centenary British Fellowships/Awards Scheme for 1989-90

Applications on plain paper are invited from Indian Citizens for award of twentyfour scholarships under NEHRU CENTENARY BRITISH FELLOWSHIPS/AWARDS SCHEME (formerly known as Foreign & Commonwealth (FCO) Scholarships) for the year 1989-90. These scholarships will be offered in the following subject fields :

(1) Indian Studies (University of Hull); (2) International Relations; (3) Media/Journalism/Communication Studies; (4) Law; (5) English Literature; (6) Contemporary History; (7) Political Science; (8) Economics; (9) Computer Science; (10) Electronics; (11) Mathematics; (12) Physics; and (13) Chemistry.

Duration of Scholarship : The duration of the scholarship is upto three years with effect from 1st October, 1989.

Value of Scholarship : These awards are fully funded by the British Government and cover international air fare, tuition fees and living expenses in Britain.

Minimum Qualification : Uniformly good academic record with a first class Master's degree in the subject or in a related field.

Age : The age-limit is 30 years as on 1st October, 1989 except for those wishing to pursue Post-Doctoral Studies who should be below 35 years. The upper age limit is, however, relaxable by two years in case of SC/ST candidates.

Last Date : 10.1.1989 for receipt of applications in the prescribed format.

General Instructions : (i) The application should be made in the prescribed format (in triplicate) (format given below the advertisement) (ii) Photograph should be attached with each copy of the application (iii) Applications should have the approval of the Head of the Department concerned, where the applicant is a Government servant, employed in Government Undertaking or a Body funded by the Government. (iv) Signature and stamp of the employer should be affixed on the application. (v) Each application must be accompanied by :

(a) attested copy of the certificate of age. (b) attested copy of the marks-sheet of the qualifying examination. (c) attested copies of all degrees/diploma certificates. (d) proof of the capacity to pursue studies applied for.

(vi) Candidates who have been awarded scholarships in any scheme need not apply for scholarship under this scheme. (vii) Candidates who are at present abroad are not eligible to apply. Candidates who have already been abroad for studies/training/specialisation, whether on scholarship or on their own, are eligible to apply only if they have been in India for at least 3 (three) consecutive years after their return from abroad as on 1.10.1988. (viii) Interview letters in a particular subject are sent only to the best candidates in order of merit after their applications are judged by a duly constituted Selection Committee of Experts. (ix) Equivalent foreign Degrees and Diplomas are acceptable. (x) In case of the candidates qualifying from Universities/Institutions which do not give class or Division, requirements in lieu of 1st Class would be 60% marks. Where grades are awarded, the candidates are required to furnish exact percentage or marks and indicate the conversion formula. (xi) In case the Indian Postal Order is enclosed with the Advance copy, it is not necessary to enclose the same again, but the applications received without IPO will be incomplete and not be considered. (Postal Orders issued only after the date on which the advertisement was published in the news paper will be accepted). (xii) Candidates should have adequate knowledge of geographical situation, culture and heritage of India and donor country. (xiii) Please indicate if the candidate is already in touch with any of the British Universities, and if the candidate gets admission, he should furnish a proof to this effect. (xiv) Canvassing in any form will be a disqualification. (xv) Persons not possessing the prescribed qualifications need not apply.

FORMAT

The candidate should apply for the above scholarship on PLAIN PAPER with a recent passport size photograph, furnishing the following details/particulars to : The Assistant Educational Adviser, Ministry of Human Resource Development, Department of Education, External Scholarships Division, E.S. 4 Section, Room No. 517-B Wing, Shastri Bhavan, New Delhi-110001, by 10-1-1989 (Note : Applications received late will not be entertained).

1. Name of the Scholarship Scheme
2. (a) Subject : (b) Sub-Subject
3. Name of the candidate in block letters with full mailing address :
4. Date of birth and State to which the candidate belongs :
5. Whether a member of SC/ST or a Tribal of aboriginal Community, if so, give full particulars.
6. Academic record starting from high school/ higher secondary level.

Recent passport size
Photograph duly signed in
block capitals to be
pasted here. Without
photograph application will
be considered incomplete

Name of the University/Board/Institution	Examinations passed	Year of passing	Division/Class with Position, if any	% age of marks obtained and position, if any.	Subject taken.

7. Details of Professional/Practical Training and Research Experience, specifying the period & number of papers published, previous employment with name & date of employment, if any.
8. Nature of the present employment with date of appointment, designation and the name and address of the employer.
9. Name, Designation and address of three referees who are familiar with work of the scholar : (Candidates called for interview will have to bring with them the comments of all three referees).
10. Have you been abroad, if so, give full particulars of the country and the period of stay and the date of return to India.
11. Proposed programme of study/research/training :
(i) the work in which engaged at present. (ii) nature & programme of study/research and possible British University/Institute. (iii) Future plans/prospects after the proposed studies/research and (iv) How are related to the technical or economic or social development of India; a write-up in 300 words (Approximately).
12. Crossed Postal Order of Rs. 5 00 (Rs. 1.25 in case of SC/ST candidates, etc) payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi, may be attached with the form. (Only one P.O. worth Rs. 5)- should be submitted even though you are required to submit the application IN TRIPLICATE).

Place ———

Signature of the Candidate

Date ———

NOTE : Employed candidates must send their applications fully sponsored by the Employers. However, advance applications will be considered provisionally pending employer's sponsorship.

davp 88/595

TATA INSTITUTE OF SOCIAL SCIENCES

(Institution Deemed to be a University)

POST BOX NO. 8313, DEONAR, BOMBAY-400 088

announces

FULL TIME POST-GRADUATE PROGRAMMES FOR 1989-90

1. Master's Degree in Social Work with specialisations in (1) Criminology and Correctional Administration, (2) Family and Child Welfare, (3) Medical and Psychiatric Social Work, and (4) Urban and Rural Community Development.

2. Eligibility : A Bachelor's (3 years, or, 2 years and 1 year bridge course under the 10+2+3 scheme), or, a Master's degree in any faculty with a minimum of 45% of the marks or the equivalent.

2. Master's Degree in Personnel Management and Industrial Relations : A Bachelor's (3 years, or, 2 years and 1 year bridge course under the 10+2+3 scheme), or Master's degree in (i) Arts/Commerce with a minimum of 50% of the marks or the equivalent, or (ii) in the Sciences with a minimum of 55% marks (at first attempt, and 5% more for subsequent attempts. Candidates who complete their Bachelor's (in the 10+2+3 stream) Master's degree examination IN FULL including practicals by June 5, 1989, are also eligible to apply, subject to having obtained the same percentage of marks in the 1st and 11th years (together) in the University College examinations.

BROCHURE AND APPLICATION FORMS will be available on sending Rs. 20/- by Demand Draft, if by post, between February 1 and May 5, 1989. Kindly superscribe on the cover "Request for Application form for M.A. in I SW/2 PMIR or both 1 & 2", as the case may be. Alternatively, cash payment will be accepted between February 1 and May 18 (Mondays through Fridays : 10 a.m. to 2.00 p.m.)

Last Date for receipt of completed forms : May 19, 1989.

SPECIAL PROVISIONS

For Scheduled Castes/Tribes Candidates. Reservation of seats for SC (15%) and, ST (7-1/2%). Application form supplied free on sending attested copy of Caste/Tribe Certificate. Travelling allowance reimbursed, and free meals and hostel accommodation provided during tests only for those SC/ST not employed and appearing for the test for the first time.

For Foreign Nationals 5% of the seats are reserved subject to their eligibility and Govt. of India Regulations.

Hostels : Seats available for Men and Women Students. A few scholarships and loans available for Indian nationals only.

The Institute reopens on Monday, June 20, 1989.

(Advertisement for M. Phil/Ph.D. in Social Work/Social Sciences programmes is being issued separately).

N. Krishnamoorthy
REGISTRAR

REFERENCE AND RESEARCH TOOLS

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

Invaluable Reference for Those Seeking to Register for a Doctoral Programme.

The Bibliography is classified by subjects and covers all the disciplines in which a Doctoral Degree is awarded by the Indian Universities. Each entry gives complete Bibliographical details, viz. Name of the Research Scholar, Title of the Thesis, University/Institute where the research was conducted, years of registration and award of degrees, availability note—where a thesis is available in the University Library/Department concerned/University Office and the Name and complete address of the Guide/Supervisor.

Comprehensive and exhaustive as the bibliography is not only reports the research being conducted at the university centres, but also includes research work done at the institutions of national importance, like the IITs, Institutions Deemed to be Universities, like the Indian School of Mines, CSIR Laboratories as also the Research Establishments connected with ICAR and ICMR.

The Bibliography is indeed a measure of the research output of the country.

HARDBOUND

1957-1979

1. Social Sciences	Rs. 50.00
2. Humanities	Rs. 100.00
3. Physical Sciences	Rs. 125.00
4. Biological Sciences	Rs. 100.00

1970-75

Physical Sciences	Rs. 120.00
Biological Sciences	Rs. 120.00
Social Sciences and Humanities	Rs. 150.00

1975-76

Natural and Applied Sciences	Rs. 90.00
Social Sciences & Humanities	Rs. 50.00

1976-77

Natural & Applied Sciences	Rs. 120.00
Social Sciences & Humanities	Rs. 70.00

1977-78

Natural & Applied Sciences	Rs. 100.00
Social Sciences & Humanities	Rs. 90.00

1978-79

Natural & Applied Sciences	Rs. 125.00
Social Sciences & Humanities	Rs. 90.00

1979-80

Natural & Applied Sciences	Rs. 130.00
Social Sciences & Humanities	Rs. 90.00

1980-81

Natural & Applied Sciences	Rs. 180.00
Social Sciences & Humanities	Rs. 120.00

1981-82

Natural & Applied Sciences	Rs. 225.00
Social Sciences & Humanities	Rs. 150.00

1982-83

Natural & Applied Sciences	Rs. 250.00
Social Sciences & Humanities	Rs. 160.00

1983-84

Natural & Applied Sciences	Rs. 320.00
Social Sciences & Humanities	Rs. 180.00

1984-85

Social Sciences & Humanities	Rs. 200.00
Natural & Applied Sciences	Rs. 320.00

1985-86

Social Sciences & Humanities	In Press
Natural & Applied Sciences	In Press

BOOKS ALSO AVAILABLE WITH LEADING BOOKSELLERS IN THE COUNTRY

Address Enquiries to :

Under Secretary (Publications)

ASSOCIATION OF INDIAN UNIVERSITIES

AIU House, 16 Kotla Marg,

New Delhi - 110002

Phones : 3310059, 3313390, 3312305, 3312429

Telex : 31-66180 AIU IN Gram : ASINDU

Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan (Nauni) H.P.

ADMISSION NOTICE

Applications (in duplicate) are invited upto 9-1-1989 for admission to Doctoral Programme in the disciplines shown as under against each College for the Academic Session 1988-89 (Second Semester) commencing from 23rd January, 1989. The eligible candidates must bring all the original certificates and present themselves for interview on the date noted below against each College.

Disciplines	Date of Interview	Minimum Qualifications
I. College of Forestry, Solan	11-1-1989 (11.00 A.M.)	M.Sc. in the concerned discipline from a recognised University. In case of Forestry, the following shall also be eligible in order of preference. (a) M.Sc. Science with AIFC/SFS 2 years diploma course (b) M.Sc. (Hort.) (c) M.Sc. (Agr.)
1. Forest Biology & Tree Improvement 2. Silviculture & Agro-forestry 3. Forest Products & Utilization		
II. College of Horticulture, Solan	12-1-1989 (11.00 A.M.)	Provided that the candidates must have secured an OGPA 3.20/4.00 or its equivalent under course credit system or atleast 65% marks in aggregate in case of annual system of Examination. OR Degree of a Foreign University (with atleast 'B' grade or its equivalent) recognised as equivalent for the purpose by the Academic Council.
1. Fruit Culture & Orchard Management 2. Post Harvest Technology 3. Vegetable Crops 4. Entomology & Apiculture 5. Mycology & Plant Pathology		

Reservation for Scheduled Caste Scheduled Tribe Candidates

22½% of the total seats (except 10% seats reserved for ICAR nominees) shall be reserved for the candidates belonging to scheduled caste (15%) and scheduled tribe (7½%). In case candidates in any of these categories are not available the seat(s) will be interchangeable between these two categories. The minimum qualifying marks for the candidates of above categories shall be relaxed by 5%.

General

(i) The inservice candidates must apply through proper channel by specified date with specific letters of sponsorship.

(ii) No separate interview letters will be issued. No TA etc. will be admissible for attending interview. The ineligible candidates need not come for interview.

(iii) Prospectus-cum-Admission Form is obtainable from the office of the undersigned on payment of Rs. 10.00 in cash at the counter or by sending crossed Indian Postal Order worth Rs. 15.00 payable to the Comptroller, the Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan. No Money Order will be accepted for this Purpose.

(iv) List of selected candidates as well as the candidates placed on waiting list for disciplines of both the colleges will be displayed by 13-1-1989.

**B.S. Nainta
REGISTRAR**

CLASSIFIED ADVERTISEMENTS

NATIONAL METALLURGICAL LABORATORY

JAMSHEDPUR-831007

Advt. No. 4/88

Recruitment of Scientist 'F'

At is proposed to appoint 4 Scientists 'F' for the National Metallurgical Laboratory (NML), Jamshedpur 831007 (Bihar), in the discipline and grade mentioned below.

NML's objective is Pursuit of Excellence in Research in the Preparation and Properties of Engineered Materials; and the Application of the Results of the Research for the Benefit of the Society.

The applicants' background, commitment and career goals should be commensurate with NML's objective.

Category

Scientist 'F'—4 posts (Scale: 5100-6300) plus Allowances as admissible under Central Government Rules.

Conditions of Service

This is a contractual appointment initially for a period of six years. The contract is extendable and the incumbent can also be confirmed. Consultancy subject to an upper limit of Rs. 5,000/- per year is permissible. Free Medical Aid and Leave Travel Concession also permissible for the family as per Government's Rules. Residential Accommodation will be provided on payment of usual rent subject to availability.

The above positions are available in the divisions inclusive of the sectional areas indicated below:

Analytical Chemistry: Instrumental, Conventional, Standard Samples; **Computer Application:** Numerical Methods, Process Simulation, Systems; **Corrosion Protection:** Protection & Coatings, Inhibition, Corrosion Behaviour; **Ferrous Process:** Process Development, Ore Reduction, Refractories; **Information & Research Management:** Planning, Liaison & Technology Utilization, Publications, Library; **Instrumentation & Electronics:** Electronics & Control Instrumentation, Microprocessor Application; **Material Evaluation:** Creep, Non-destructive Evaluation, Fatigue & Fracture; **Material Processing:** Casting & Powder Processing, Mechanical Shaping, Physical Characterization, Structural Characterization; **Process & Project Engineering:** Process Engineering, Project Engineering, Prototype Develop-

ment & Sub-contracting; **Mineral Processing:** Mineral Characterization, Mineral Beneficiation, Agglomeration; **Non-ferrous Process:** Roasting & Leaching, Smelting & Refining, Extraction & Electrowinning.

Job Requirements

To plan, lead, guide, organize and manage research and/or development in the areas stated above. Should have capabilities of formulating, executing and supervising projects in these and other related areas and interact with user/market to transfer new technology developed as a result of the research.

Qualifications

High academic qualifications with First Class Master's Degree or Doctorate Degree in Engineering, should have an established reputation in the field and 10 years of proven record of research work and creative ability in the respective areas mentioned above.

Age

Preferably below 50 years, relaxable in deserving cases. A duly constituted 'Screening Committee' will decide on the number of scientists to be invited to meet the full Selection Committee. The decision of the Council in this behalf will be final. Applications from employees working in Government Departments, Public Sector Organizations and Government funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be released within three months of receipt of the appointment orders.

Those interested may kindly send in their Curriculum Vitae in duplicate in the form obtainable from the Controller of Administration, National Metallurgical Laboratory, Jamshedpur 831007, on or before January 30, 1989.

UNIVERSITY OF RAJASTHAN JAIPUR

Advertisement No. Estt. II/88/II

Dated: 17-12-88

Applications are invited (through proper channel in case of those who are already in employment) so as to reach this office on or before 6.1.1989, in the prescribed form obtainable from the Registrar's office on pre-payment of Rs. 4/- in cash (Rs. 10/- in case required by post) for the following posts:

1. **Press Manager—One**

Scale of Pay: Rs. 2540-60-2600-75-3050-100-3650-125-3900.

2. **Coach—One (for Cricket)**

Those who applied earlier to this office Advt. No. Estt./II/87/

VIII dated 30.11.87, need not apply. Their previous applications will be considered.

Scale of Pay: Rs. 1460-30-1640-40-2000-50-2300-60-2600-75-2900.

3. **Technical Assistant—One** (for S.A.P. Project, Zoology Deptt. upto 31-3-1990).

Scale of Pay: Rs. 1120-20-1200-25-1400-30-1640-40-2000-50-2050.

4. **Technical Assistant—One** (for South Asia Study Centre)

Scale of Pay: Rs. 1120-20-1200-25-1400-30-1640-40-2000-50-2050.

5. **Section Cutter—One** (for Deptt. of Geology, Jaipur)

Scale of Pay: Rs. 880-15-1000-20-1200-25-1400-30-1640-40-1680.

6. **Cook—Five**

Scale of Pay: Rs. 820-10-850-15-1000-20-1200-25-1400-30-1520-40-1680.

7. **Animal Care Taker—One** (for S.A.P. Zoology Deptt. upto 31-3-1990).

Scale of Pay: Rs. 730-10-850-15-1000-20-1200-25-1250.

8. **Gas Cleaner—One** (for Deptt. of Chemistry)

Scale of Pay: Rs. 710-10-850-15-910.

Notes

- (i) Details of qualifications etc. will be made available with application form.
- (ii) Number of posts indicated above may be altered by the University without notice.
- (iii) Retired persons need not apply.
- (iv) Incomplete applications or applications received on plain paper or after 6.1.1989, will not be entertained in any case.
- (v) Dearness and other allowances are admissible as per University Rules.
- (vi) Candidates will be called for interview at their own expenses.
- (vii) The minimum age of the candidate should be 18 years on the last date of receipt of application.
- (viii) There is a reservation of S.C./S.T. candidates to the extent of 16% and 12% of posts in each category.

REGISTRAR

BANASTHALI VIDYAPITH

(Deemed to be University)

NATIONAL INSTITUTION FOR EDUCATION OF WOMEN

Requires the following

(i) Faculty of Education			
	Reader	3	(English 1, Home Science 1, Educational-Philosophy/Sociology/Psychology 1)
	Lecturers	2	Teaching of Economics 1 Teaching of Political Sc. 1
(ii) Adult & Continuing Education			
	Co-ordinator	1	
	Project Officer	1	Adult & Continuing Education
(iii) Faculty of Home Science			
Clothing & Textile	Professor	1	
	Reader	1	
	Tech. Asstt.	1	
(iv) Faculty of Fine Arts			
Music	Lecturer	1	(Vocal Music)
(v) Faculty of Social Science			
Economics	Reader	1	Micro Economic Theory Theory of Economic Growth Research Methodology
(vi) Faculty of Humanities			
English	Professor	1	(Teaching Methods Evaluation & Course Development Criticism Modern Poetry)
	Tech. Asstt.	1	
	(Language Laboratory)		
(vii) Central Library			
(a) Junior Technical Assistant		1	Graduate and B.Lib. Sc. Experience desirable.
(b) Library Assistants		2	Hr. Secondary with Certificate in Library Science, English, Hindi Type Knowing preferred.

Qualifications as recommended by U.G.C. (details will be supplied with application form).

Pay Scales

Professors : 4500-150-5700-200-7300.
Readers : 3700-125-4700-150-5300
Lecturers : 2200-75-2800-100-4000
Technical Asstt. : 1490-30-1640-40-
2000-50-2300-60-2600-75-3050

Jr. Tech. Asstt. (Library) : 1140-20-
1200-25-1400-30-1640-40-2000-50-2250

Library Asstt. : 880-15-1000-20-1200-
25-1400-30-1640-40-1600.

Dearness Allowance, Contributory
Provident Fund, Gratuity-cum-Insurance
as per Vidyapith rules. Residential
accommodation at subsidized rates.

Notes

- Teacher must become habitual wearer of Khadi on appointment.
- Selection Committee may recommend higher start in exceptional cases on merit.
- The Vidyapith reserves the right to reduce or increase the number

of vacancies or not to fill-up any post advertised.

- Vidyapith will contribute travel assistance upto 11th class fare for interview for all other posts. However 1st class fare for the post of Professor.

Applications on prescribed application forms (seven copies) must reach The Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 by 21st January, 1989. Forms can be obtained by sending self-addressed envelope of 16 x 23 cm size with Rs. 4.20 stamps (Rs. 9.20 for registered post). However, for Professor's Post Bio-data on plain paper (seven copies) may be sent to the Secretary in confidence. Applications for Jr. Technical Asstt. (Library) Library Assistants may be sent on plain paper with necessary documents (Age certificate, attested copies of mark-lists of all examinations) within 20 days of the advertisement No. 13/88.

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

REQUIRES

Post 1 : Senior Scientific Officer (1 post) in the National Centre for Science Information (No. R/IA/308-48/88)

Post 2 : Senior Scientific Officer (2 posts) under the Project Education and Research in Computer Networking (No. IA/308/52/88)

Post 3 : Lecturer (1 post) in the Instrumentation and Services Unit (No. IA/308 53/88) (Reserved for SC, hence only SC candidates need apply).

Post 4 : Scientific Officer (1 post) in the National Centre for Science Information (No. R/IA/308/49/88)

Qualification & Experience

Essential : Post 1 : Master's Degree in Computer Science/Engg. OR Master's Degree in Library Science or Associateship in Documentation/Information Science from DRTC or INSDOC. Minimum 6 years experience in design, development and management of computer based information retrieval systems; OR Ph.D. or equivalent research experience in the area of Information Retrieval Systems with minimum 3 years experience in design, development and management of computer based information retrieval systems.

Post 2 : Ph.D. in Electrical/Electronics/Communication Engg. or Computer Science with specialisation in Computer Communication or Computer Networking or Computer Hardware/Software or Communication System Hardware/Software with 2 to 3 years experience; OR Master's Degree in Electrical/Electronics/Communication Engg. or Computer Science with specialisation in Computer Communication or Computer Networking or Computer Hardware/Software or Communication System Hardware/Software with 4 to 6 years experience. (The appointment is upto 30.6.1990, but likely to continue).

Post 3 : Ph.D. in Science/Engg./Technology with 2 to 3 years good research experience in Thermal/Analytical instrumentation.

Post 4 : Master's Degree in Computer Science/Engg. with experience in programming in FORTRAN, COBOL, PASCAL, DBMS and C; OR Master's Degree in Library Science or Associateship in Documentation/Information Science from DRTC or INS-

DOC with atleast 3 years experience in software development in FORTRAN, COBOL, PASCAL, DBMS and C.

Desirable : Post 3 : Experience in teaching and in organising long and short term courses; in research projects/schemes.

Post 4 : Experience in computer based information retrieval systems.

Emoluments : Posts 1 & 2 : Rs. 4390/- p.m. in the Scale Rs. 3000-4500;

Posts 3 and 4 : Rs. 3256/- p.m. in the Scale Rs. 2200-4000.

Details and prescribed application forms can be obtained on request from the Registrar (separate for each post) accompanied by a crossed IPO for Rs. 5/- drawn in favour of the Registrar, Indian Institute of Science (Free of cost for SC/ST if supported by Caste/Tribe Certificate from a competent authority) alongwith a self-addressed, Rs. 5.40 stamped envelope of 28 cms x 18 cms size, on or before 9th January, 1989.

REGISTRAR

UNIVERSITY OF HYDERABAD

(A CENTRAL UNIVERSITY)

Established in 1974 by an Act of Parliament)

Employment Notification

No. UH/R/Rctt/9/88

Dated : 7-12-1988

The University invites applications in prescribed form for the following positions in the Academic Staff College.

1. One post of Reader
(Pay Scale of Rs. 3700-125-4950-150-5700)
2. One post of Lecturer
(Pay Scale of Rs. 2200-75-2800-100-4000)
3. One post of Documentation-cum-Technical Assistant
(Pay Scale of Rs. 1640-60-2600-EB-75-2900)

Note : (i) Posts carry allowances as per Central Government rates applicable at Hyderabad.

(ii) Candidates for the posts of Reader and Lecturer are required in any of the areas in Social Sciences/Humanities/Sciences/Management/Education.

The prescribed application form and other details of qualifications etc., can be had either in person from the Office

of the Academic Staff College at the Golden Threshold, Nampally Station Road, Hyderabad 500 001, or from the Administration Office (Recruitment Section) at the University Campus in Gachibowli, Hyderabad 500 134) or by post by sending a self-addressed envelope of size 28 cm x 13 cm duly affixing postage stamps worth of Rs. 2/- and superscribing on the top left corner of the envelope "Request for application for the post-----in Academic Staff College".

The last date for the receipt of the filled-in applications is 7th January, 1989.

Acting REGISTRAR

REGIONAL ENGINEERING COLLEGE

(PUNJAB)

Camp Office : Mehr Chand Polytechnic Hostel, Kabir Nagar,

Jalandhar-144 008

Advertisement No. (7/88)

Applications are invited for the following posts so as to reach the Principal, Regional Engineering College, Jalandhar alongwith Indian Postal Orders or Demand Draft drawn on State Bank of India, (Code No. 1547) Jalandhar for Rs. 15/- (Rs. 7-50) for SC/ST candidates) in favour of the Principal on or before 31st January, 1989.

Professor in Textile Engineering (One Post) : Rs. 1500-60-1800-100-2000-125/2-2500 (unrevised but likely to be revised).

Asstt. Prof. in Textile Engineering (One Post) : Rs. 1200-50-1300-60-1900 (Unrevised but likely to be revised).

Qualifications

1. Professor in Textile Engineering :

An eminent scholar with published work of high quality, actively engaged in research. Ten years' full time experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made a significant contribution to knowledge.

2. Asstt. Professor in Textile Engineering

Good academic record with a Doctor's Degree in a relevant field. About five years full time experience of

teaching and/or research and development. Provided further that candidates, not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design development work of a high order either in an institution or in an industry.

OR

In the case of persons to be recruited from industry or professional fields, candidates should possess good academic record with recognised professional work of about seven years which should include innovation and/or research and development.

Note for Post at Sr.[No. 1 & 2

All candidates must possess Bachelor's degree in Textile Engineering. Higher academic qualifications and experience should be in any relevant field of Textile Engg./Technology.

All the posts carry D.A. and other allowances as admissible under the rules of the College. Candidates called for interview from outside will be paid single 1st Class Railway/Air conditioned Bus fare by shortest route for their journey to and fro. No D.A. will be admissible. Provision for higher start exists for exceptionally qualified and deserving candidates. Persons in Government/Semi Government service should submit their applications through their employers. Applications typed on plain paper giving the following particulars complete in all respects should be sent by registered post :

1. Advertisement Number
2. Post applied for
3. Name in block letters
4. Father's Name
5. Address : Permanent Present
6. Date of Birth
7. Qualifications : Name of examination passed, Name of Institution, year of passing, % of marks, Division/Rank etc. with documentary proof.
8. Experience giving complete details of posts held, period of employment, Name of employer, Salary drawn (separately showing basic pay and D.A.) with documentary proof.
9. Details of Research/Published work (attach prints/photocopies).
10. Joining time required.
11. Name and Addresses of two references.
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V.S. Julka
PRINCIPAL

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